Province of
British Columbia

Ministry of
Agriculture
and Fisheries

Honourable Harry De Jong, Minister

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91-06516/

British Columbia Cataloguing in Publication Data

British Columbia. Ministry of Agriculture and Fisheries.
Annual report. — 1985; 1986/87-

Continues: British Columbia. Ministry of Agriculture and Food. Annual report. ISSN 0710-8664
Report year varies: 1985, Dec. 31; 1986/87- March 31. Report for 1986/87 covers 15 month period Jan. 1, 1986 to March 31, 1987.
ISSN 0835-4871 = Annual report - Ministry of Agriculture and Fisheries (Victoria)

1. British Columbia. Ministry of Agriculture and Fisheries - Periodicals. 2. Agriculture - British Columbia - Periodicals. 3. Agriculture and state - British Columbia - Periodicals. 4. Fisheries - British Columbia - Periodicals. 5. Fishery policy - British Columbia - Periodicals.

S141.B76 354.7110682'3
Rev. March 1989

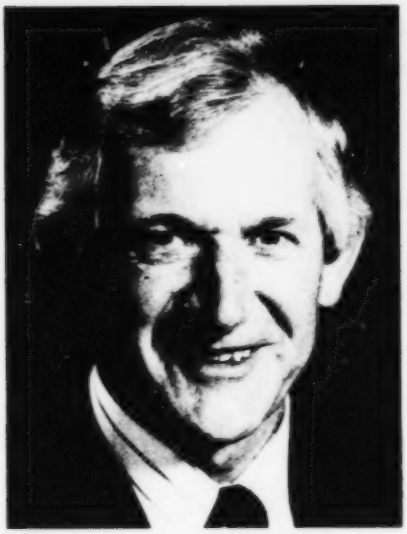
Rev. March 1990

Annual Report 1989-90

Ministry of
Agriculture
and Fisheries

Honourable Harry De Jong, Minister

Mission Statement



Honourable Harry De Jong, Minister

The Ministry of Agriculture and Fisheries will encourage sustainable growth and development of industries involved in producing, processing, distributing, and marketing agricultural, fish and food products in British Columbia to meet demand in domestic and export markets.

Province of British Columbia

OFFICE OF THE MINISTER

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To the Honourable
David Lam, C.M. LL.D
Lieutenant-Governor of the
Province of British Columbia

May It Please Your Honour:

The Annual Report of the Ministry of Agriculture and Fisheries for 1989-90 is herewith respectfully submitted.

Harry De Jong
Minister of Agriculture and Fisheries

Province of British Columbia

OFFICE OF THE DEPUTY MINISTER

Ministry of Agriculture and Fisheries

808 Douglas Street
Victoria
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To the Honourable
Harry De Jong
Minister of Agriculture and Fisheries
Victoria, British Columbia

Sir:

I have the honour of submitting the annual report of the Ministry of Agriculture and Fisheries for 1989/90.

Bruce A. Hackett.

Bruce A. Hackett
Deputy Minister

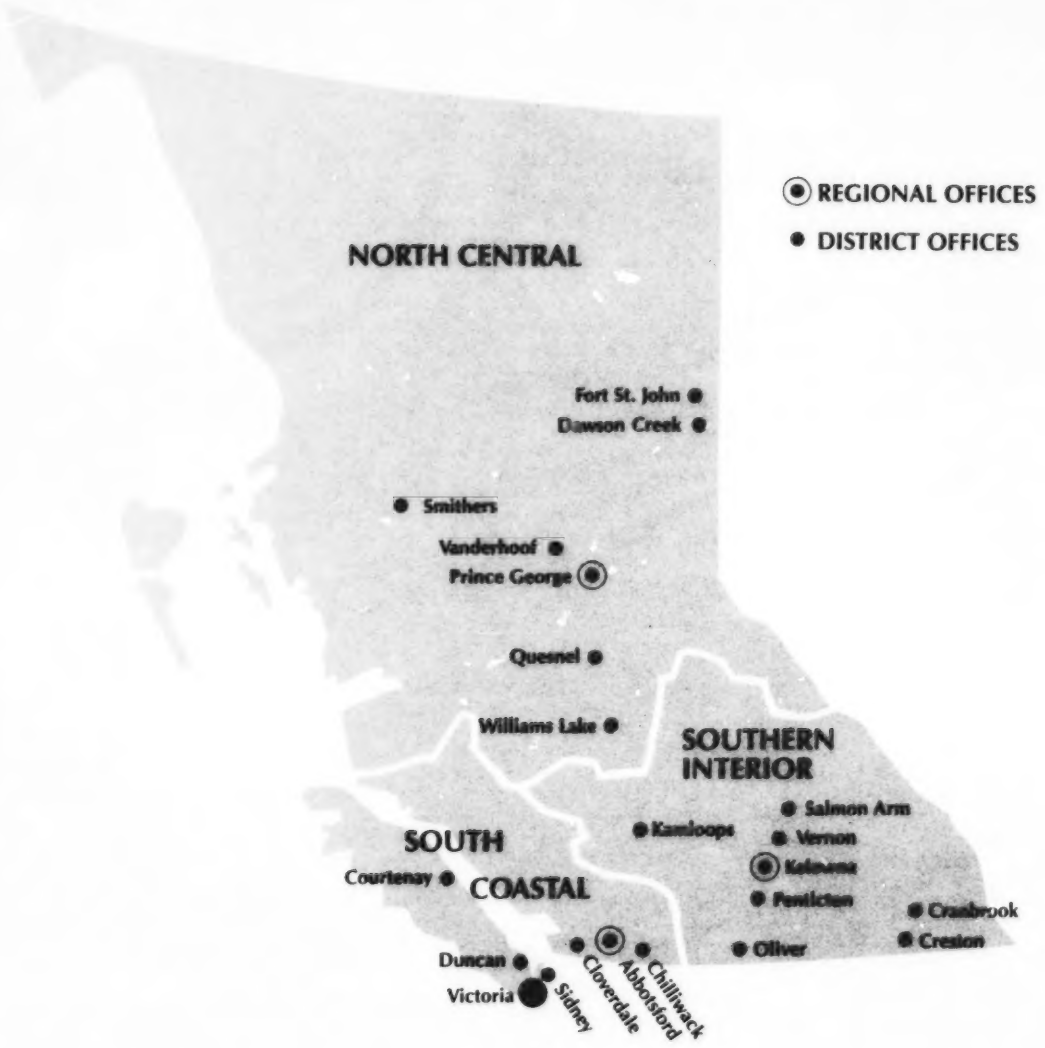
Contents

Mission Statement	4
Minister's Letter of Transmittal	5
Deputy Minister's Letter of Transmittal	6
Agricultural Regions Map	8
Competitiveness	9
Quality and The Environment	12
Service to Customers	17
Financial Stability	24
Management Accountability	27
Revenues	30
Expenditures	32
Statistical Tables	34
Related Agencies	45
Legislation	45
Index	46
Organization Chart	50
Ministry Offices	51

Province of
British Columbia

Ministry of
Agriculture
and Fisheries

AGRICULTURAL REGIONS



Competitiveness

As our society moves toward a global economy, agricultural producers, processors and distributors must look beyond traditional domestic markets and make special efforts to remain competitive.

Our Main Objectives

The ministry supports the development of progressive marketing systems which make it possible for producers and food processors to determine trends, identify niche markets and stay in touch with domestic and foreign consumers, while keeping quality high and prices fair to all concerned.

The Free Trade Agreement (FTA), the General Agreement on Tariffs and Trade (GATT) and other international agreements require the B.C. producer to remain competitive in an increasingly demanding economic system. Export market development programs assist food producers and processors by increasing their marketing capabilities, and by locating international markets for agricultural products, technologies and expertise.

Developing Specialty Markets

Production and consumption of exotic, gourmet, specialty and "organic" crops are on the increase and represent significant niche market opportunities.

British Columbia's commercial fisheries sector has identified the need for aggressive global marketing. In cooperation with a number of innovative fishing organizations, the ministry has begun to lay the groundwork for an integrated, industry-wide marketing strategy to address the rapidly changing markets of the 1990s.

Initiatives in direct marketing of horticultural products on Vancouver Island proved very effective this year. Ministry representatives on the board of the Saanich Peninsula Direct Marketing Association (SPDMA) report that membership continues to expand and now includes virtually all major farms in the area.

British Columbia is recognized by the United States as the only province in Canada which is free of Blueberry Maggot. This disease-free status allows B.C. producers to ship fresh blueberries without fumigation with methyl bromide. Access to the U.S market has allowed producers to plan for a 100 per cent expansion in the next four years. The ministry has assisted producers in maintaining standards which protect the maggot free status.

Seed money provided by the ministry in 1987/88 has resulted in the publication of the Farm Guide, a comprehensive annual listing of all Saanich Peninsula farms involved in farm gate sales together with maps and seasons of product availability. There were 150,000 copies published this year, 85,000 of which were distributed through local community newspapers. Consumer response was excellent. Growers report substantial increases in sales.

Expanding Trade

The first full year within the Free Trade Agreement focused attention on the increasing complexities of trade. Responsibilities for export, trade policy and trade intelligence were reassigned to the Trade Development Corporation and the Ministry of International Business and Immigration, allowing this ministry to concentrate its resources on developing the export potential of B.C. food products.

The four major priorities identified are: exploitation of free trade market opportunities; development of market opportunities related to food quality and safety; improvement of market sensitivity of producers; and improvement of the awareness of federal and provincial government policy makers regarding the marketing of British Columbia food products.

A Memorandum of Understanding addressing interprovincial trade barriers was signed by all provincial ministries of agriculture and the federal government this year. Signatories to this Memorandum agreed that such barriers hinder trade, fragment the domestic market and adversely affect the international competitiveness of the agri-food sector.

Lowering the Barriers

The effects of the Canada-U.S. Free Trade Agreement were felt in many sectors of B.C. agriculture and fisheries.

Some policies in place prior to the signing of the FTA have had to be removed or renegotiated.

The B.C. processing industry will be hard pressed to compete with U.S. producers as the duty protecting domestically processed vegetables is phased out. B.C. processors must produce a product which is competitive anywhere in North America. This factor will put increasing pressure on growers to accept lower prices.

A study funded under ARDSA and co-sponsored by the B.C. Vegetable Marketing Commission and the B.C. Food Processors Association is being conducted to assess the industry's competitiveness. The study will focus on the effect of taxes, subsidies and regulation, and will develop an effective business strategy for growers and processors.

In April 1989, the Canadian export restrictions on unprocessed roe herring, fresh sockeye and pink salmon were removed. New regulations required that all salmon and herring be delivered and off-loaded at provincially licensed, shore-based buying stations. These regulations were intended to facilitate sampling by Canadian conservation authorities, to expedite accurate harvest records and effective resource management.

These new regulations were challenged by the United States as a restraint on trade inconsistent with both the GATT and the FTA. In October 1989, a dispute resolution panel accepted the Canadian argument on the need for data collection for conservation purposes, but suggested that partial exemption be allowed when "export without landing would not impede the data collection process".

In February 1990, agreement was reached on implementation of the panel report. Canada has agreed to make up to 20 percent of the allowable catch available for export by sea in 1990, and up to 25 percent in the years 1991 through 1993.

Direct export of part of the salmon and herring harvest has created concerns over the potential loss of processing jobs in British Columbia. The industry is being carefully monitored and measures to enhance competitiveness are being investigated and examined by government and industry.

Maritime boundaries are an ongoing issue for British Columbia fishermen, and this year two B.C. trollers were seized by the United States Coast Guard, and charged with operating in U.S. waters. This ministry, in cooperation with the Ministry of Regional and Economic Development, supported the fishermen's right to fish in boundary waters. The federal Departments of Fisheries and Oceans and External Affairs are currently considering provincial recommendations to provide navigational aids that would reduce the probability of future incidents.

A subcommittee co-chaired by the ministry's Manager of Aquaculture Industry Development and the Washington State Aquaculture Coordinator was established to discuss and resolve issues of trade and cooperation in aquaculture research and extension. The program has been very effective in addressing important cross-border issues and identifying those which require expanded federal participation.

Towards More Profitable Production

The ministry submitted a position paper to the federal Pesticide Registration Review Team, stating its concerns with the present system and presenting recommendations for restructuring. Changes in U.S. pesticide registration also prompted the ministry to review previous decisions in an effort to develop uniform production standards.

Crop losses due to weed infestations exceeded $41 million and costs of control were about $8 million in 1989. To assist local governments in enforcement of the Weed Control Act, the ministry provided $296,415 in grants to local weed control programs. These grants triggered an additional expenditure of $842,451 by local governments.

The lack of registered herbicides is a major constraint in the profitable production of vegetable and berry crops. In response, the ministry sponsored a number of projects to develop prescriptions for herbicide use and to promote better management of weed, insect and disease control options.

Greenhouse losses from diseases or pests can be enormous. The Crop Protection Branch must maintain a high degree of vigilance to protect the industry from such outbreaks.

Innovative solutions must often be developed for situations in which there are no approved methods of pest control.

Western flower thrips present a serious threat to the $50 million greenhouse floriculture industry, because they transmit tomato spotted wilt virus (TSWV). Significant improvements to integrated pest management programs for western flower thrips were made this year.

The ministry also directed extensive research toward finding biological controls for the sweet potato whitefly. Greenhouses were surveyed to confirm the presence of the melon aphid in cucumber crops.

In field crops and orchards, the Crop Protection Branch carried out surveys for filbert blight, virulent blackleg of canola and bacterial ring rot on potatoes. No evidence of these three diseases was found.

The annual pear trellis rust survey examined over 8,000 junipers and more than 2,500 pear trees. Approximately 470 diseased junipers were destroyed and 45 nurseries were certified rust-free.

Apple ermine moth pheromone traps were tested in 1989. A moth survey in the Okanagan Valley was also done, but no moths were found in any commercial orchards.

The nursery certification program enabling B.C. nursery growers to ship certified apple ermine moth-free rootstocks throughout Canada, without the need for additional testing was approved by the Plant Protection Division and confirmed in a Trade Memorandum issued in February 1990.

Restructuring a Valuable Industry

British Columbia's tree fruit industry is facing economic difficulties. Although many initiatives are under way to improve the outlook, educational programs are seen as a major tool for improved orchard management. In keeping with this approach, the Extension Branch published: the Tree Fruit Production Guide, publications on high density orchard systems, a farm management package for the tree fruit sector, and a variety of fact sheets on innovative production techniques.

In December, 1989 Cabinet approved the appointment of an inquiry into British Columbia's tree fruit industry. The mandate of the commission was to:

- prepare a detailed financial analysis of all sectors of the British Columbia tree fruit industry including production, packing, processing and marketing;
- determine the constraints and opportunities for the British Columbia tree fruit industry, taking account of the changing global trading environment, market opportunities and industry cost-competitiveness;
- consult with industry and government on options; and
- prepare a report for presentation to Cabinet.

The Commissioner's report is to be delivered in May of 1990.

Wildlife Damage Control

Preventing wildlife damage to crops and livestock is a responsibility shared by this ministry, Ministry of Environment and producers. The Ministry of Agriculture and Fisheries assists producers by recommending means of preventing crop losses and by dealing with damage caused by rodents and some birds.

Wildlife damage to crops and livestock in B.C. is estimated to exceed $10 million annually. Damage to tree fruit and forage crops by deer and elk was particularly serious in 1989, as the populations of these animals increased in the southern interior.

Destruction of beehives by black bears has also caused serious losses to beekeepers in both equipment and honey.

Expansion of the Agricultural Land Development Assistance (ALDA) program in March 1990 to include loans for construction of wildlife exclusion fences should assist producers to protect their crops. Ongoing projects, such as odour repellants for predator deer and testing of mouse bait for pocket gopher control, assist producers in identifying ways to reduce losses caused by wildlife.

Improving Poultry Production

New developments in high-efficiency fluorescent lighting systems present an opportunity to reduce poultry production costs.

In cooperation with B.C. Hydro and ARDCORP (ARDSA-funded on-farm technology transfer program), a project was set up to evaluate the cost effectiveness and performance of a PL9

fluorescent system versus a standard incandescent system.

Preliminary results indicate that lighting costs in a conventional layer barn may be reduced by as much as $400 per year. New barns may also be constructed using from 66 to 75 per cent of the standard number of light fixtures, while still providing adequate lighting.

Can-West Horticultural Show

The Can-West Horticultural Show is produced through a partnership between the B.C. Nursery Trades Association and the United Flower Growers Cooperative. Through this show, B.C. nursery material and floriculture products are promoted to the Pacific Northwest trade. This year's event was one-third larger than previous shows, with 200 exhibitors and attendance of about 3500 people.

Quality and Environment

The ministry has a continuing commitment to work with the B.C. food industry to maintain and improve the quality and marketability of our food products in a manner which protects and replenishes our environment. This emphasis on sound resource management strategies reflects a growing public concern with environmental quality and land use.

Innovative Strategies

Regrowth of aspen trees on seeded pasture has significantly reduced forage production in the Chilcotin region. The ministry responded to this problem by conducting field trials and demonstrations using environmentally friendly herbicide "wipe-on technology". Unlike the traditional spray method, this approach uses a herbicide applicator containing a wick which is wiped directly across the plants to be controlled.

Complete control was achieved on 6-10' tall aspen one year after wipe-on with glyphosate. On another site, no significant aspen regrowth was observed four years after similar treatment.

Protecting the Crops

The Crop Protection Branch continued its annual survey of Okanagan cherry orchards for little cherry disease in June and July 1989. This infection is caused by a virus transmitted by the apple mealybug. The only effective control method is removal and destruction of infected trees. During this fiscal year 43 diseased trees were identified and destroyed. This compares favorably with 1988, when 101 trees had to be destroyed, and demonstrates the effectiveness of continued monitoring.

Producers are constantly on the lookout for new crop varieties which are more productive, disease-resistant and more adaptable to changing demands in the marketplace. Ministry staff took a leading role in the evaluation of new varieties for a wide range of horticulture crops. Promising varieties were introduced to the industry via field days, growers' newsletters, short courses and direct contact between ministry extension staff and the growers.

Ministry staff also provided support and expertise to an ARDSA project aimed at educating seed potato farmers to produce tissue-cultured virus-free seed potatoes.

Quality at Sea

The rapid growth of B.C.'s aquaculture industry has encouraged the development of management methods to create a uniform, high quality product. The use of antibiotics to control disease in commercially farmed salmon was addressed this year by ministry staff. Regulations were developed and a sampling and testing program to monitor compliance is being implemented. Veterinarians now supervise

antibiotic use in all British Columbia farmed fish, except those medicines which are specifically permitted under federal regulations.

Responding to the need of fisheries inspectors and the industry for precise interpretations of all regulatory requirements for buying stations, the ministry prepared a Fish Inspection Compliance Manual. This document is being distributed to federal inspection officials and industry organizations.

In the processing sector, the federal Department of Fisheries and Oceans (DFO) introduced a Quality Management Program. The DFO now requires that each plant have its own program to monitor compliance with regulations and to ensure that any problem is quickly identified and resolved.

The Canada-U.S. Free Trade Agreement has resulted in discussions to harmonize fish inspection standards between the two nations.

Maintaining Animal Health

The Animal Health Branch administers thirteen Acts directed toward sustaining the health of B.C. livestock. Approximately half of these Acts are administered directly by the Brands and Regulatory Services section. The suitability of these Acts is under constant review, with emphasis this year on the Cruelty to Animals Act, the Pharmacy Act, the Veterinary Laboratory Act and the diseases named under the Animal Disease Control Act.

The Branch regulates activities in the livestock sector mainly by education and discussion. This technique has led to better understanding and support of these Acts within the livestock sector.

The ministry maintains a sophisticated laboratory at the Animal Health Centre in Abbotsford. The laboratory provides a consultative diagnostic service for veterinarians, livestock producers and field representatives of agricultural service companies.

Diagnostic methods, tests and reporting times are constantly being reviewed and updated. Approximately 250,000 analyses are performed annually. These include 40,000 bacteriological, 55,600 virological, 31,000 toxicological, 30,000 histological tests and 5,000 post mortems. To date, several potentially dangerous diseases have been detected early, allowing preventive action to be taken.

Highly favorable reviews by the livestock industry and veterinarians indicate that the laboratory provides an essential and successful service not available through the private sector.

The Swine Herd Health Program (SHHP) has a membership involving most of the breeding herds in British Columbia. Through slaughter inspections and farm visits the health status of herds is documented and any necessary corrective action is taken. This program has led to a significant improvement in herd health throughout the province and to increased sales both inside and outside the province.

Other animal health programs operated by the ministry include the Commercial Swine Program, the Aleutian Disease Eradication Program in mink, the Poultry Monitoring Program, and the Sheep Footrot pilot project. These programs are excellent examples of government/industry partnerships, wherein the ministry provides a leadership role and industry is fully involved in advisory and financial support.

The Animal Health Branch has also been involved with the rapidly growing game farming industry. Large numbers of fallow deer are being imported into B.C. from other provinces, New Zealand, the United Kingdom and the United States. Reindeer herds have also been imported from the Northwest Territories into the Peace River area. The ministry carried out extensive screening for diseases and parasites, in an ongoing committment to maintain and improve herd health.

Problems detected in fallow deer herds were mainly nutritional and corrective action was taken. The most significant disease problem consisted of two cases of bovine-type tuberculosis found on one large farm. All in-contact animals were subsequently slaughtered.

Protocols for reindeer quarantine were designed and implemented. Some animals became part of a federal experiment to determine whether reindeer diseases could be transmitted to domestic cattle.

Food Safety

Food safety is of special concern to this ministry, and our animal health centre conducts tests

for antibiotic and antibacterial residues in animal products entering and leaving the province.

Education is seen as the most effective means to encourage safe pesticide use. By January 1, 1992, approximately 4,000 farmers purchasing or using "restricted" pesticides will have to be certified by the Ministry of Environment.

BCMAF staff participated in the development of a pesticide applicator home study course. Ministry specialists wrote or edited major sections of text dealing with pesticide classification and formulations, pesticide labels, legislation, pesticide toxicity, poisoning and first aid, protective clothing, and personal and environmental safety.

The course, consisting of 10 lessons plus a production guide and video, will be available in fall 1990.

Integrated Pest Management

Innovative strategies and management techniques are constantly being sought and developed by the ministry to reduce the use of agricultural chemicals. Extensive research and demonstration projects have been undertaken by ministry staff to develop and promote the use of Integrated Pest Management (IPM) in crop production. A video entitled "Protecting Nature's Balance", highlighting IPM in B.C.'s horticulture industry, was produced and aired on the Knowledge Network.

Environmental concerns exist in several major areas: direct toxicity to the applicator, environmental pollution through run-off, and pesticide residues.

A number of projects and field tests were conducted by the ministry to develop control methods for noxious weeds in rangeland. These included Dalmatian toadflax, leafy spurge, nodding thistle and tansy ragwort. The combination of herbicides for short term control, followed by insects and other biological control agents for the long term, proved highly effective in the majority of cases.

British Columbia horticulturists are leading North America in the development and adoption of IPM. This approach to pest control reduces the usage of chemical pesticides by combining physical, biological, genetic and chemical technologies. By carefully monitoring pest infestations, the producer is able to time and select various treatments for optimal effectiveness. This strategy greatly reduces the need for chemical pesticides, reserving them only for worst-case situations, rather than applying them as a matter of course throughout the growing season.

These methods, well timed and judiciously applied, can significantly reduce pesticide use and input costs to the producer. An ARDSA funded demonstration project found that pesticide volumes could be reduced by as much as 60-70 per cent in high density orchard systems.

Biological control, through the use of beneficial insects and other organisms, can actually have a permanent effect on noxious weed populations, reducing their populations to a tolerable level.

To encourage reduction in herbicide use and to gain cost-effective weed suppression, the ministry continued to support biological control research. A $30,000 grant was issued to the International Institute of Biological Control for screening and release of two biological control agents for the control of the weed, toadflax. In cooperation with the Ministry of Forests, 105 new releases were made across the province against seven target weed species.

Thirty-five different insects have been used as biological control agents against 15 weed species on about 730 release sites. Weed densities are gradually declining where biological agents are well adapted. For example, on some sites knapweed density has been reduced to about 50 percent as a result of the combined effect of the root boring beetle, Sphenoptera and the seedhead fly, Urophora.

Globe '90

Globe '90, a major international environmental trade show and symposium, was held in Vancouver March 19 to 23, 1990. The British Columbia government's theme, "Handling B.C. with Care", involved information on soil, water, waste management and food safety. The Ministry of Agriculture and Fisheries presented displays of modern, environmentally responsible technologies for pest control and soil and water resource management.

Driftnets

The Pacific driftnet fishery is recognized by this ministry as a serious potential threat to North American salmon stocks, and the marine ecolo-

gy of the North Pacific. The ministry has taken a firm public stand on this issue and has urged the Government of Canada to use diplomatic means to curtail the destruction of non-target species trapped by these nets.

An international driftnet conference, cosponsored by this ministry and the federal Department of Fisheries and Oceans, was held in Victoria in July 1989 to address this issue. This conference led to the North Pacific Driftnet Declaration, which was signed by British Columbia's Premier Vander Zalm and the Governors of Alaska, California, Hawaii, Idaho, Oregon and Washington. The Declaration listed six initiatives that could be taken immediately by the governments of Canada and the United States to better manage Pacific marine resources. It further requested that both federal governments actively pursue negotiations with Japan, Taiwan and South Korea to resolve this matter. Subsequent diplomacy through the United Nations has led to agreements with Japan and Taiwan to phase out large-scale driftnet fishing by mid-1992.

Environmental Awareness on the Farm

This ministry has designed and implemented programs to increase producers' environmental awareness, and to provide them with information and technologies to sustain our soil and water resources over the long term.

Over 750 people, including 600 registered dairy producers from all over British Columbia, attended a 2-day Dairy Producers' Short Course conducted by ministry staff. The course focused on the effective, non-polluting use of nitrogen fertilizer.

The ALDA Program guidelines were expanded to encourage farmers to employ technology and equipment which will enhance and conserve soil and water resources. The program now also includes measures to protect and improve water resources for aquaculturists.

Sustaining Soil and Water Quality

British Columbia's small, highly productive agricultural land base requires that every effort be made to conserve this resource and maintain its fertility. Our rivers, lakes and streams are the basis of the salmon fishery which is one of the pillars of the British Columbia economy. The ministry recognizes the role of agribusiness in protecting, sustaining and enhancing soil and water quality.

Environmentally sound use of fertilizers depends on scientifically valid soil testing methods and fertilizer recommendations. Privatization of the provincial soil, feed and tissue testing laboratory disclosed the need for some methods of quality assurance.

The ministry's Soils and Engineering Branch in consultation with representatives from fertilizer supply companies, private testing laboratories and research organizations developed a comprehensive manual describing acceptable procedures for analysis and for interpretation of results, which would be accepted as the standard reference across the province. The first draft of the manual is complete and will be distributed to industry and the public by the Soil Test Council.

Wind erosion of light sandy soils in the Fraser Valley can be quite serious, particularly following the autumn field corn harvest when soil is left bare for the winter. The ministry has promoted the sowing of annual forage crops for winter cover, and farmers' response has been favourable. This initiative will continue in subsequent years with incentives provided by the "Best Soil Management Plan" option in the ALDA program.

Soil erosion in the Peace River region is a serious problem. The ministry has initiated a number of projects in the area to determine the effect of conservation tillage methods on soil erosion.

On-farm demonstrations by the ministry have proved the effectiveness of minimum or zero tillage methods and have overcome much local skepticism regarding this technology. Many producers are now evaluating the use of conservation practices in their cropping systems.

The Soils and Engineering Branch was involved in 35 water management projects (9 of them major ones) throughout the province. These projects were initiated under the ARDSA program and will be providing improved drainage and irrigation to more than 15,000 acres (over 6,000 hectares) of farmland.

Because much of B.C.'s most productive farmland lies in regions with erratic rainfall patterns, irrigation has become essential to many production systems. The need for a consistent standard of irrigation design has led to the development of the Certified Irrigation Designer Program. Several design manuals have been

produced, and to date 29 designers have registered for the program, with six already certified. Over the next five years, an additional 75 participants are expected to register in the program.

Several approaches to water conservation techniques are under study in the heavily irrigated Okanagan Valley. Conversion from conventional sprinkler systems to trickle irrigation and the installation of meters on all irrigation connections could save up to 30,000 acre-feet of water yearly.

The Memorandum of Understanding for the introduction of Prairie Farm Rehabilitation Administration (PFRA) to the Peace River Region was signed this fiscal year. This Agriculture Canada program provides technical and financial assistance to farmers and ranchers for soil and water conservation and development projects.

Practical Solar Energy

Access to water for livestock in remote rangeland can be a serious problem. The ministry has been investigating the use of solar powered (photovoltaic) livestock water pumping systems for several years. Successful results with a 500-watt pumping unit have led to the development of a smaller, less costly model. Initial tests have shown good reliability and low system cost. Monitoring continued in 1990, and the Soils and Engineering Branch will be making this information available to producers in the B.C. Livestock Watering Manual.

Managing Farm Waste

Much of British Columbia's most productive agricultural land borders on densely populated urban areas. Intensive farming, especially animal production, can result in manure waste disposal problems and run-off. Properly managed agricultural waste can be a valuable resource, enriching the soil and improving production.

The ministry, together with the B.C. Federation of Agriculture, Ministry of Environment, federal Department of Fisheries and Oceans and local governments formed an Agricultural Waste Management Committee. This committee will develop amendments to the Waste Management Act to establish a new agricultural waste control regulation. In support of the regulation, a code of agricultural practice for waste management is being developed in consultation with the agriculture industry. These codes will document environmental protection standards for producers.

Programs are also under way to develop effective management models, on-farm systems, and to identify those areas in the province where the environmental risk due to agricultural waste is most acute.

The Farm Management Branch prepared reports evaluating the economics of sustainable farming practices as they related to minimum and zero tillage systems for Peace River grain production, the development of wetland meadows, and swine manure handling and treatment systems. Information gathered for these reports is being passed on to producers through extension programs.

Aquaculture and the Environment

The ministry is playing a key role in resolving the conflicting demands of such coastal resource users as commercial and recreational fishermen, aquaculturists and the general public.

In July 1989, the Honourable John Savage and Canada's Minister of Fisheries and Oceans signed an agreement to implement a three-year, federal-provincial cost-shared program to address fisheries-aquaculture interactions.

In fiscal year 1989/90 over $485,000, including $250,000 in provincial funds, were allocated to studies addressing concerns such as disease transmission, genetic interactions between wild and farmed salmon populations and antibiotic contamination of shellfish.

The ministry's Aquaculture and Commercial Fisheries Branch participated in the Sechelt Inlet Coastal Strategy Project as part of a multi-agency group. The group successfully negotiated an "area designation" scheme to protect the inlet's environment and avoid siting conflicts.

The branch also contributed information on aquaculture sites and the biophysical capabilities of the coastline to the Coastal Resource Interests Studies (CRIS) conducted for the Ministry of Crown Lands in Nootka Sound and Broughton Archipelago areas. As part of the Steering Committee, the branch negotiated to maximize the area to be available for aquaculture.

These negotiations led to important developments in three major areas.

- Sechelt CRIS—the current approved level of finfish production was maintained and opportunities for further shellfish and marine plant culture were provided.
- Nootka CRIS—criteria used in this study resulted in large biophysically attractive areas being designated "no opportunity" for aquaculture. However, it proved possible to negotiate relaxation of the "no opportunity" category in some areas and the Ministry of Crown Lands agreed to process all finfish farm applications received prior to study completion.
- Broughton CRIS—experience gained during the Nootka CRIS negotiations allowed the ministry to improve the outcome for aquaculture in the Broughton Archipelago. Negotiations led to a very favourable "opportunity" map for aquaculture.

Through workshops, conferences and publications the ministry has transferred much technology to aquaculturists, and kept producers informed of new research and developments. Aquaculturists are now trained to recognize and prevent or mitigate any negative environmental impacts which might be associated with their operations.

These efforts have established the ministry as an international authority in the development of information and administrative systems to integrate aquaculture into the local environment.

Service to Customers

Agricultural technology is evolving rapidly. The ministry's development and extension programs strive to keep today's producer informed of new developments and prepared to effectively implement new methods and technologies.

Innovations Through The DATE Program

The Demonstration of Agricultural Technology and Economics (DATE) program is a hands-on, cost effective program which provides funds and supervisory personnel for a variety of practical projects. In 1989-90, 22 projects received a total of $137,500 in funding. An additional $10,810 was contributed by the private sector.

Projects included the production of a video on Integrated Pest Management, the development of a Raspberry Cane Topping Machine, and new developments in native Christmas tree production.

A project entitled "Improved Marketability of B.C. Produced Horses" entered its second year. This project is designed to assist the horse breeding industry in developing a recognized horse evaluation program.

Reducing bird damage to valuable horticultural crops such as blueberries and grapes was the subject of another DATE project. Several methods of installing bird-proof netting were investigated and a new design was prepared and installed. This information was subsequently presented to 150 growers at the 1990 Growers' Short Course in Abbotsford.

The Saanich Peninsula Direct Marketing Association, started four years ago with a $1,000 DATE grant, now serves 40 farms and has an annual operating budget of $10,000. Projects initiated by this non-profit association have generated dramatic increases in sales for its members.

Technology Transfer in Fisheries and Aquaculture

The farming of fish in British Columbia is a young industry. Introduction of aquaculture as a commercial enterprise has required the development of regulations and infrastructure to ensure its orderly, environmentally sensitive development. One factor restricting profitability in aquaculture is a high (up to 50 per cent) fish mortality. Plankton blooms, inadequate nutrition and disease have been significant factors in these losses.

The Animal Health Branch of the ministry, in close cooperation with Aquaculture and Commercial Fisheries branch, has undertaken a number of programs to improve producers' knowledge of fish farm management and husbandry. A full time fish health veterinarian has been hired to work with farmers and extension staff to determine why certain diseases are problems and find economical means to manage them.

Ministry staff coordinated the Plankton Watch Program which trained fish farmers to monitor on-site plankton conditions and to assist in the effective operation of a telephone-based early warning system. These actions greatly reduced farm losses from plankton blooms relative to past years.

The world's first video designed to help aquaculturists identify the algal species which can kill fish and shellfish was produced and distributed.

Field sampling done on a major algal bloom in September 1989 identified the source of the bloom, its distribution over a six week period, and the geographic and biophysical attributes of those farm sites particularly hard hit. Although losses due to the bloom were approximately $4.2 million, insurance companies felt that losses of a further $6 to $8 million would have been sustained were it not for the Plankton Watch Program.

A one-month Winter Survey of Illness and Deaths of Farmed Salmon was carried out on 25 per cent of salmon farms, randomly selected. Each farm was visited, moribund fish were examined and the cause of the condition determined. This was the first organized survey of cause of death on fish farms. This study led to a much more complete understanding of the types of illnesses and deaths in farmed salmon. Data and information not previously available were collected and will form the basis for future research and farm management practices.

The ministry is encouraging industrial investment in the commercial fishing sector and seeking to accelerate development of opportunities in marine resources not presently being utilized. The Aquaculture and Commercial Fisheries Branch has organized forums to identify and evaluate economic opportunities, and to illustrate the potential for diversification in B.C.'s commercial fisheries. This involvement has led to the formation of the Underutilized Fisheries Development Center with a mandate to promote opportunities in this area.

Improving Forage Management

Low yield of native grasses, poor quality forage, noxious weed infestations and rangeland deterioration are areas of production targeted by the ministry for improvement. Programs have been designed to improve forage production and management.

The ministry's range management staff tested and demonstrated a number of techniques for range improvement. A knapweed control project which involved chemical spraying followed by the seeding of crested wheatgrass and fertilizing with nitrogen, produced results which verified experiments done in previous years. A 13 fold improvement in forage production was demonstrated using this technique.

Demonstration sites in the Cariboo established by the ministry illustrated the superior performance of selected grasses, as compared to native rangeland species. These new grasses produced twice the amount of forage of native species, with sufficient protein and digestible nutrients to meet the requirements of cows in early gestation. Ranchers now can opt to grow forage proven for fall grazing, and reap significant savings on winter feed costs.

A special grant of $80,000 was given to the B.C. Cattlemen's Association to assist local cattlemen with chemical and biological control of knapweed and Dalmatian toadflax.

A major commitment was continued this past year with the Southern Interior ARDSA Cultivar Testing Program in cooperation with the B.C. Cattlemen's Association. The objective of the program is to identify and demonstrate varieties of grasses, legumes and cereals best suited to the Southern Interior Region. Trials conducted in cooperation with the Agriculture Canada Research Station in Kamloops focused on the

management and financial return of annual forages such as barley, ryegrass and vetch.

Similar studies in the Fraser Valley and Vancouver Island were aimed at developing a comprehensive grass-legume forage evaluation program. As a result, forage producers in the region now can devise optimal mixtures for their individual needs from 24 varieties of cultivars.

Ministry extension personnel instructed dairy operators in the production and economics of quality feed. The annual Dairy Producers' Short Course forage competition attracted 157 entries. Laboratory analysis showed that forage quality had improved significantly over the previous year.

Some range lands have deteriorated to the extent that low productivity is limiting beef production. Field demonstrations of advanced management systems included seeding and fertilizing carefully chosen grass/legume mixtures, evaluation of various irrigation systems for forage production, setting up livestock water pumping, storage and distribution systems, and construction of fences to regulate livestock and grazing. These resulted in significant increases in yield, protein content and total digestible nutrients in the forage.

Inter-Agency Cooperation

A great number of ministry projects involve cooperation with organizations in the public and private sectors. This exchange of services and ideas is critical to maintaining the ministry's progressive approach to problem solving. A Federal/Provincial workshop on agricultural employment examined all areas of agricultural labour in British Columbia, and sought to ensure that the industry will continue to have an adequately trained and well managed labour force. The meeting included representation from Employment and Immigration Canada, BCMAF, the B.C. Federation of Agriculture and agribusiness. Three major categories of concern were identified:

1) Labour supply/seasonal housing
2) Image of agriculture
3) Human Resource Management

A committee to examine these questions was proposed, comprising representatives from the various sectors. This structure will be put in place in 1990-91.

The Farm Management Branch participated in a major initiative to develop and implement an Okanagan Strategy for the tree fruit industry. The main purpose of the strategy is to identify, research and develop appropriate information to improve the knowledge, skills, management and profitability of British Columbia tree fruit growers.

This project operates on a number of different fronts simultaneously and requires the cooperation of many organizations, including BCMAF, Agriculture Canada, the tree fruit industry, Michigan State University Tree Fruit School and the International Dwarf Fruit Tree Association.

Management and Training Programs

The Farm Management Branch of the ministry collects and develops farm management information, conducts economic research into new technology and provides leadership, resource support and training to the agriculture, fish and food industries and to ministry staff.

A "Planning for Profit" binder containing single-page enterprise information budgets for 77 commodities was developed to provide current cost and return information guidelines for crop and livestock planning.

In excess of 325 binders were distributed to producers, ministry staff, lenders and agribusiness, exceeding projected demand by more than 60 percent. The budgets have been used extensively by ARDCORP in farm training seminars.

The Branch provided input and assistance to ARDCORP in the organization and development of financial management courses for tree fruits, dairy, poultry, nursery and beef enterprises. This included developing course curricula, enterprise budgets, planning packages, computer models and case studies. Training sessions were also provided to the ARDCORP on-farm consultants. The twenty-two courses offered were well attended and received very positive feedback.

In response to the need for a comprehensive farm financial planning package which could provide B.C. farmers with a format for developing a business plan, Management Branch developed the "Planning for Profit" package. These packages were coordinated with the enterprise budgets so that producers could consider alternative enterprises and/or more efficient resource use in developing a total farm plan.

Twelve hundred crop planning packages and

800 livestock planning packages were produced and distributed throughout the province.

New Computer Systems

Much of the work done by the Farm Management Branch of BCMAF is in the area of developing new computer programs and packages to enhance productivity and make new information available to farmers.

This past year a number of software packages were developed by Branch staff. These included a computer model to compile and analyze swine herd program data, "Planning for Profit" planning packages, and a Farm Business Analysis Program for beef and tree fruits.

In addition, microcomputer spreadsheet models were created for dairy, beef, grains, tree fruits, greenhouse, blueberries, swine, raspberries, Christmas trees, strawberries, kiwi fruit, ginseng and vegetables, reindeer and fallow deer.

Education in the Field

A number of major articles are submitted every two months to the B.C. Federation of Agriculture for its new magazine, "B.C. Agriculture", a high quality publication focusing on the business aspects of agriculture. Articles are submitted on topics such as farm management, production techniques and marketing trends, as well as specific commodity development and extension programs of the ministry.

Two hundred and forty participants attended Farm Business Challenges 1990, a top level business management conference designed to bring together leading farmers, agribusiness, farm advisors and others interested in farm business management. A publication entitled "Farm Business Digest" recorded the proceedings and was distributed to 5,000 producers in B.C.

The Lower Mainland Horticultural Improvement Association held a Short Course and Trade Show in Abbotsford. This major extension activity brought South Coastal horticulturists and their commodity organizations together to share information and concerns related to the berry, vegetable and nut sectors.

Personnel from the Ministry's Farm Management Branch made resource presentations to meetings, seminars and workshops involving over 700 industry participants.

Publications produced by the ministry each year include documents of general interest, as well as technical materials for producers and specialists. Materials such as production guides, manuals, fact sheets, newsletters and radio programs complement ongoing activities of ministry extension staff.

The Burgeoning Greenhouse Industry

Crops grown in protected environments such as greenhouses, plastic tunnels and mushroom houses are showing remarkable growth potential.

Activity in the nursery industry was very strong in 1989-90. Despite a severe winter freeze with accompanying crop losses, gross sales were up by an estimated 10 per cent. Currently the farm gate value of the industry is placed at $53 million.

The floriculture greenhouse industry continues to expand. Sales were up by 6 per cent and farm gate value is $71 million. This represents an increase of 54 per cent over the last five years.

The 1989 farm gate value for the greenhouse vegetable industry is estimated at $24 million, an increase of 10 per cent over 1988 and a 140 per cent increase over 1985. Expansion has been most rapid in sweet peppers, tomatoes, and cucumbers. The industry is expected to double in size by 1992.

Plant diseases can have devastating effects in greenhouse environments. The Crop Protection Branch of the ministry has identified tomato spotted wilt virus (TSWV) as the most threatening disease to the greenhouse floriculture industry. Ministry staff arranged a special seminar on TSWV for greenhouse growers in April 1989. Additional materials and presentations alerted the industry to TSWV and its possible introduction on symptomless imported plant material.

Dairy

Changing consumer demands continue to affect the dairy industry. Consumer concern with fat content caused an increase in market share for one per cent milk. "Light" ice cream experienced another 500 per cent increase.

This year at the Fraser Valley College in Chilliwack, ministry staff conducted five seminars for new entrants to the B.C. Milk Board's Graduated Entry Program. The Board allows 10 new producers per year to become licensed, quota-

holding milk suppliers. Entrants generally have good practical knowledge of production but lack business and administrative expertise. These seminars, therefore, cover major topics on the business aspects of dairy production.

Response to these seminars has been very favourable and even experienced dairymen found the information valuable. As a direct result of these seminars, several new producers sought advice from ministry specialists in putting together their business plans before they began shipping milk.

Five ventilation and milk quality seminars were held in the northern region of the province in response to complaints concerning milk flavour. Investigation showed these problems to be due to poor quality feed and inadequate ventilation in barns. Good attendance at the seminars by regional producers and the adoption of new practices have successfully resolved this situation.

Ministry staff have been closely involved in the production of the Dairy Digest, the official quarterly publication for technical articles and bulletins of the Dairy Industry Program. This publication reaches all producers and associated agribusinesses.

A government proposal to opt out of the national supply management scheme caused considerable concern among dairy producers. Producer reaction to the proposal was strongly negative. As a result, a Provincial Task Force was appointed to investigate and determine the concerns of the industry. Following a series of 11 meetings throughout the province, six major themes were identified:

- that British Columbia remain in the National Milk Marketing Scheme;
- that the B.C. dairy industry prepare for greater flexibility within the system;
- that the B.C. government make representation to the Federal Government to enforce customs regulations regarding the importation of dairy products;
- that the government provide resources to assist with product development and marketing;
- that milk be paid for on a multi-component basis; and
- that the provincial government actively participate in negotiations affecting long-term dairy policy and the supply management system in Canada.

An amendment this year to the Milk Industry Act restructured the Milk Board as the B.C. Milk Marketing Board. The majority of the task force recommendations are currently being considered by the new Board.

Exploring New Directions

British Columbia's great variety of climates and environments lends itself to a highly diversified agricultural base. Diversification in difficult economic times can be an effective buffer against sudden changes in markets for individual products.

B.C.'s fledgling deer farming industry continued its steady expansion this year. Since the approval of the first farm in 1987, 40 additional operations have been licensed, bringing the number of fallow deer, bison and reindeer to more than 12,000 head.

The industry has an inventory value of approximately $20 million with additional capital costs of roughly $25 million. Operations are dispersed throughout the province. The largest percentage of fallow deer operations is on Vancouver Island and the Lower Mainland, while reindeer and bison are concentrated in the Peace River region. Bison ranching is quickly expanding in the Cariboo and Interior regions of the province.

Producers are beginning to organize into groups, identifying common concerns. This process makes it easier for the ministry to focus its extension efforts effectively. Groups include the Peace Country Bison Association, Peace Country Reindeer Association and the B.C. Game Farmers Association.

The B.C. Game Farming Advisory Council is the government appointed agency responsible for reviewing game farm issues. Health remains the biggest obstacle to the importation of new breeding stock. Tuberculosis and brucellosis were detected in fallow deer and reindeer respectively. These diseases were addressed immediately by Agriculture Canada and this ministry, resulting in the destruction of two herds numbering approximately 500 head. In both cases, farmers were compensated under Agriculture Canada's Health of Animal legislation.

Additional quarantine measures have been placed on fallow deer from New Zealand and the United States for TB, while imports from the United Kingdom have been restricted due to Bovine Spongiform Encephalopathy (BSE or

"Mad Cow Disease"). Reindeer imports from the Northwest Territories are subject to rigorous Agriculture Canada requirements.

The game bird industry, valued at an estimated $4.3 million, is small compared to other sectors of the poultry industry. However it has shown a significant growth rate in the last five years.

A game bird development plan was initiated by the Provincial Poultry Specialist in cooperation with industry representatives. The plan provides a body of data for the industry, as well as a description of the current infrastructure. Copies of the plan were distributed to producers and others associated with the industry.

The kiwifruit industry has established a solid foothold on Vancouver Island. This past year 500,000 pounds of good quality fruit was produced, and projected acreage for 1990 is 50 acres. Five hardy kiwi fruit varieties have been selected for commercial potential.

There has been substantial interest in hardy kiwifruit production from several other areas in B.C. as well as other provinces. A "Kiwifruit Manual" was prepared by the ministry specialist and is distributed by the Kiwifruit Growers Association of B.C.

Hazelnut growers, through assistance from the ministry, have developed and implemented quality standards for production, and are developing domestic and export market strategies. Producers and processors have already seen an increased market share as a result of these projects.

An innovative project using grazing sheep to replace herbicides and manual labour in removing unwanted vegetation from forestry clearcuts was carried out.

Development and Extension staff in the Kamloops District are monitoring weight gain on lambs and running cost comparisons to determine the advantages of a sheep-for-vegetation management system over normal approaches.

The Christmas tree industry is striving to regain strength in British Columbia. Approximately 800,000 trees are produced each year by growers throughout the province and marketed across Canada. The ministry cooperated in a study which examined the current state, limitations and potential of the industry.

Support for an Expanding Horse Industry

The 30,000 horse owners in British Columbia contribute over $400 million annually to the provincial economy. Almost $250 million are direct expenditures for feed, bedding, labour and building maintenance. A further $150 million is spent by firms providing goods and services to the industry: tack, trailers, veterinary services and supplies.

Farms reporting horses were the only type of livestock farm which increased in numbers during the last census period. Opportunities for growth on small land holdings on the urban fringe are substantial.

The ministry is assisting in the orderly development of the horse industry in order to increase economic activity and job opportunities in the racing, sport and recreational horse sectors.

The ministry has completed a comprehensive survey and analysis of the economic impact of the horse industry. Staff assisted the industry in conducting the first annual Horse Industry Short Course, and worked with Langley's Economic Development Committee to develop a strategy to encourage the industry in that area.

The B.C. Thoroughbred industry was given assistance in the design and organization of a comprehensive study of key factors affecting the demand for yearlings. This information will be critical in directing the use of the $8 million Horse Race Improvement Fund, derived from the provincial government's portion of wagering proceeds.

Ministry horse industry specialists are also encouraging the use of artificial insemination and embryo transfer technology to improve the quality and value of British Columbia bred horses. This technology reduces the need to import breeding stock, and increases export opportunities for B.C. producers.

The Honey Industry

In 1989, the apiculture industry consisted of 4,000 beekeepers with 50,000 hives. Farm value of apiculture products and pollination services were about $5.25 million. This represented an 8 per cent increase over 1988, due mainly to better honey prices and more favorable weather. In addition to honey, the industry produced beeswax, pollen, queen bees, package bees, nucleus hives and provided commercial pollination services for tree fruit, berry and seed producers.

Hive numbers in 1989 declined 7.5 per cent from 1988. This was due to low returns the

previous year and to the ban on imports of U.S. bee stock. However, better weather conditions allowed honey production to grow by 15 per cent per hive.

The ministry's regulatory and extension programs were effective in protecting the industry from brood diseases and mite pests. Staff inspected 3,141 hives for brood diseases and 25,000 hives for tracheal mites. Eighteen apiaries were discovered to have mites, resulting in the destruction of bees in 154 hives. This was a substantial improvement over the previous year, when 525 colonies had to be destroyed.

To assist producers in restocking depopulated hives, the ministry allocated $10,000 on a basis of $25 per colony. The B.C. Honey Producers Association administered this program and coordinated the supply of package bees for restocking.

To prevent the introduction of tracheal mites from other provinces, the ministry implemented a control policy to regulate the movement of honeybees into British Columbia. The policy set standards and dates of entry and removal, and regulated the placement of hives. In total, 3,700 hives were moved into the Okanagan and 2,800 into the Hatzic Valley for overwintering.

Land Use Conflicts

British Columbia's limited agricultural land base is facing increasing pressure from residential, recreational and other users. Various resource planning decisions initiated by other ministries can negatively impact the agriculture industry. To reduce negative impacts, it is necessary that an agricultural perspective be included in all land use negotiations.

This is particularly true for the livestock industry where ranching is carried out on leased Crown land. To overcome these difficulties, the ministry is encouraging ranchers to actively participate in the Integrated Resource Management planning process.

This process works towards reducing land use conflicts by considering needs of various interest groups and developing multiple use management plans.

The ministry supported a five day course to introduce ranchers to this collaborative concept, entitled Holistic Resource Management (HRM). Ranchers actively participated in the development and review of 15 Coordinated Resource Management Plans.

A major ranch operation in the Nicola Valley has adopted HRM principles, and other ranchers are actively evaluating this approach for application to their operations.

The Ministry of Crown Lands appointed a single commissioner to undertake a comprehensive review of policies pertaining to Crown lands.

Keeping Agriculture Youthful

The province's network of approximately 280 4-H clubs seeks to involve young people in agricultural activities and to raise the public's agricultural awareness.

Club members from 9 to 19 years of age have wide-ranging opportunities to learn new skills in agriculture, homemaking, leadership, outdoor living, photography, travel, participation in local fairs, and many other activities.

Most important is the preparation for life that 4-H offers. Members acquire poise, confidence, and good citizenship as they learn parliamentary procedure and public speaking at meetings, seminars, conferences and local, regional, provincial and national competitions.

The B.C. 4-H Provincial Council and BCMAF worked during the year to cooperatively develop a strategy for the continuing growth and development of 4-H in the province. The strategy focuses on developing a high profile, dynamic, exciting program with high public awareness, and well trained volunteers taking on leadership responsibility. Senior 4-H members are also encouraged to take on additional duties.

Various initiatives to recruit new 4-H members include the production of a new video and the development of 4-H T-shirts and posters. The T-shirts generated much favorable response from leaders and members in British Columbia and across the prairie provinces.

Getting the Word Out

Increasing urbanization is distancing the food producer from the consumer. There is therefore a need to inform the general public of the importance of agriculture to the British Columbia economy and to the social fabric of the province.

The ministry has supported a number of initia-

tives to increase the public's awareness and understanding of the industry:

— An Agriculture in the Classroom Foundation has been established to develop material and other resources for a classroom program.

The Foundation consists of representatives from the Ministry of Agriculture and Fisheries, the Faculty of Agriculture of the University of British Columbia, the teaching profession and the agriculture industry. Consultation on the Foundation's development is taking place with the Curriculum Development Branch of the Ministry of Education. It is anticipated that the classroom material will be ready for introduction in 1990/91.

— Numerous projects were undertaken to enhance the visibility of the ministry and the agriculture industry at agricultural fairs. Projects included banners, displays and an interactive touchscreen video program aimed at increasing public awareness of the ministry's activities and services, and the agriculture and fisheries industries in general.

Financial Stability

Fluctuating market demands, erratic weather and rapid technological change can make it difficult for food producers to predict and maintain a stable income.

The Ministry of Agriculture and Fisheries administers a variety of financial programs designed to reduce farm losses and income fluctuations caused by natural hazards and unpredictable market conditions. By using these programs to manage their risks, farmers are able to plan long-term business strategies. Other programs within the ministry are aimed specifically at providing assistance in adjusting to changing markets and stimulating industry development.

Agri-food Regional Development Subsidiary Agreement

This was the final year of the five-year Agri-Food Regional Development Subsidiary Agreement (ARDSA), a jointly funded $40 million Ministry of Agriculture and Fisheries/ Agriculture Canada program. ARDSA objectives are designed to:

- stimulate growth and development;
- increase employment;
- enhance viability and competitiveness of agricultural production and food processing; and
- conserve and develop agriculture's basic resources—land and water.

From the signing of the current agreement in 1985, to the close of this fiscal year, $33.1 million have been committed to 277 approved projects. These projects should generate a further $44.4 million private sector investment.

ARDSA approved projects in three main areas: productivity enhancement, resource development and commodity development.

Productivity enhancement projects included crop variety trials, new systems, equipment and techniques, technology demonstration, agri-business education and market development projects.

The resource development area included irrigation, drainage, water supply systems, soil conservation and improvement projects.

Commodity development encompassed production improvement as well as new and expanded market facilities including packaging, grading, storage and processing.

During this fiscal year, 99 new projects were approved under ARDSA. The approved projects dealt with issues of sustainable environment, market-driven development of new products and increased competitiveness in domestic and export markets. Drainage and irrigation projects were also initiated to increase land productivity and expand cropping options.

Biological controls and other methods were introduced to reduce the use of chemicals in food production, making British Columbia one of the leaders in Integrated Pest Management.

Overall, this program has resulted in a significant increase in the development and production of new goods for domestic and export markets.

Grape and Wine Sector Assistance

In early 1989, the provincial and federal governments signed the Canada/British Columbia Grape and Wine Sector Adjustment Assistance Initiative. The purpose of this agreement was to help the industry adjust to changes caused by implementation of the Free Trade Agreement and the GATT panel decision.

This six-year, $28 million program is designed to:

- compensate B.C. grape growers for loss of production assets;
- assist B.C. wineries in purchasing grapes at 1987 marketing board prices; and
- assist with the marketing and promotion of premium B.C. wines.

To date, virtually all disbursements in this program have been completed, with the exception of $408,785 for vine removal and $989,000 for marketing.

Agricultural Land Development Assistance

The Agricultural Land Development Assistance (ALDA) program provides loans of up to $50,000 per farm operation for primary land development, irrigation, farmland drainage and orchard projects. During this fiscal year 98 applications for assistance, valued at $2.4 million were received, and loan contracts valued at $1.3 million were issued.

A review of the ALDA program was begun during the 1989/90 year. Major changes to the program will come into effect beginning the 1990/91 fiscal year. The number and type of projects eligible for assistance will be expanded to include environmental enhancement and aquaculture. The maximum loan will be increased to $75,000 from $50,000 and the restriction on non-farm income will be removed.

Guaranteed Loan Program

The Guaranteed Loan Program assists British Columbia farmers who have insufficient loan security but otherwise viable farm operations, in obtaining credit. This fiscal year, 13 loan guarantees totaling $1.5 million were issued. As of March 31, 1990 there were 43 guarantees outstanding totaling $4.0 million. One loan guarantee valued at $1.0 million was placed under the Financial Administration Act, and at the year end two guarantees were still outstanding.

Demand for this program has decreased since the early 1980s as a result of weakening demand for agricultural credit.

Grower Loan Program

Designed specifically for the tree fruit industry and implemented in 1986, the Grower Loan Program encouraged the production of higher quality produce by supplementing federal advance payments to growers through their grower association. Interest reimbursement in 1989-90 totaled $53,734. The program agreement with B.C. Tree Fruits was not renewed during this fiscal year. Total payments issued during the term of the program from fiscal years 1985/86 through to 1989/90 equal $0.96 million.

Reducing The Risk

Income stability is a major concern for B.C. farmers. Farm Income Insurance, Crop Insurance and National Tripartite Stabilization are perennial programs administered by the Farm Income and Crop Insurance Branch. These three programs are designed to reduce the financial risk associated with production and marketing of selected agricultural commodities.

Farm Income Insurance (FII), a provincial voluntary participation program introduced in 1974, reduces losses caused by detrimental

price fluctuations such as low market return and rapidly escalating input costs. There are two methods of calculating payments under FII. The first entails calculating the difference between a cost of production and average provincial market return. The second method entails calculating the difference between a designated support price, and an average national market price. In 1989 FII had nine plans encompassing over 20 commodities and 4,167 participants.

Low market returns for 1989 apples necessitated an advance FII payment of $13.2 million. The final payment will not be calculated until all of the 1989 crop has been marketed. Poor returns in the calf market as well, required payment of $6.6 million.

The Crop Insurance Program stabilizes farm income by minimizing the economic impact of crop losses from natural perils such as drought, hail, flood and frost. The province delivers the program and covers administration costs, while the producers and federal government equally share the cost of premiums.

Since introduction of the Crop Insurance Program to tree fruit farmers in 1967, the program has expanded to seven plans with 28 insurable commodities. For the 1989 crop year 2,227 farmers insured crops for a total coverage of $81.6 million. The federal government and farmers shared the $9.6 million in premiums.

Payments exceeded premiums in 1989 by $1.3 million. Fund performance is being assessed by ministry staff to develop a system and rate scale which will more closely align revenues from premium rates with indemnities paid to insured farmers. The accumulated debt now financed by advances from the Crop Insurance Stabilization Account must be repaid.

Indemnities totaled $10.9 million in 1989. Severe winter storms lowered berry and soft tree fruit production, and hail reduced the quality of the apple crop.

Participation in the Crop Insurance Program is voluntary and varies greatly among plans and regions. The tree fruit and grape sectors have the highest participation rates. Marketing initiatives are being implemented to increase participation in the other plans.

The National Tripartite Stabilization program (NTS) is a federal/provincial program which reduces losses caused by detrimental price fluctuations or rapidly escalating input costs.

The province entered into a National Tripartite Price Stabilization agreement for apples in 1987. The 1989 apple crop is still being sold and no indemnity rates are available. In 1988 the plan had approximately 1,600 participants and no payment was made.

Tripartite Stabilization agreements were also signed for Feeder Calves (effective Jan. 1,1989), Feeder and Slaughter Cattle (effective Oct. 1, 1989), Lambs (effective Mar. 1, 1989) and Slaughter Hogs (retroactive to July 1, 1986).

Plan	Basis	Participants	Average Payout
Feeder Calves	annual	1,566	-
Feeder Cattle	quarterly	1,018	$5.23/head/month
Slaughter Cattle	quarterly	637	25.76
Home-Raised Lambs	quarterly	15	11.54
Ewe Flock	annual	182	N/A
Hogs	quarterly	251	23.88

Direct support of approximately $1 million was paid to B.C. feedlot operators to offset the market disadvantage caused by direct subsidies in competing areas.

British Columbia Feed Grain Market Development Program

This program encouraged the diversion of Peace River grain from its traditional export route to a more reliable domestic market in the southern part of the province. Producers of B.C. feed grain were eligible for a payment of $15 per tonne for grain sold into the domestic market. Livestock producers were eligible for a payment of $11 per tonne for B.C. domestic grain fed to eligible livestock.

At fiscal year-end, an estimated 109,000 tonnes of grain eligible for $2.1 million in incentive payments had been shipped into southern British Columbia. This compared to 10,000 tonnes prior to the program and 125,880 tonnes shipped during fiscal 88/89.

The program extended over two years and covered grain produced and shipped for the 1987 and 1988 crop years. Payments issued over the term of the project totaled $7.1 million.

Management Accountability

Maintenance of a high level of service in a rapidly evolving and changing information environment requires the ministry to continually redefine and upgrade policies, legislation, programs and communications technologies.

Systems Upgrading

The ministry has undertaken an aggressive action plan to improve its use of computer and communications technologies. Long range plans were accelerated to implement a computer communications network which could deliver state of the art techniques to our management and professional staff.

As a result, ministry programs can now be accessed and delivered from any point in the province. Current information can now be accessed from many local, national and international agencies such as B.C. Online, B.C. Business Network, INFOGLOBE, Dialog, USDA and Agriculture Canada.

Ministry personnel have applied their initiative, business acumen and newly acquired skills to produce cost effective means for delivering timely information and providing innovative solutions to complex problems.

The programming of the new Crop Insurance system will be complete in the first quarter of 1990-91. Staff training and database conversion will follow in time for the 1991 crop year. Each crop insurance representative will have a terminal on which to underwrite contracts and process claims. This approach will greatly improve program delivery and service.

Computer software is being developed and enhanced for the Farm Income Insurance program. Work will begin in the first quarter of 1990-91. This program will bring about a significant reduction in manual labor, processing and waiting time between application and issuance of cheques to farmers.

Public Affairs

During the 1989/90 operating year, a Public Affairs Branch was created within the ministry to provide overall planning, development, implementation and evaluation of communications for the Ministry of Agriculture and Fisheries. Responsibilities also include statistics analysis research, developing and evaluating social market research, issues management, crisis communications planning, media relations, public relations and advertising.

The Branch relies heavily on its Statistics Section for collection and verification of agriculture and fisheries data. This section of Public Affairs supplies current data to the staff of this Ministry electronically through the Harvest System, to other government ministries through B.C. Systems Corporation, to private industry and the general public through the B.C. Business Network and through an Annual Statistics publication. An initial printing of 1,500 copies of this 160-page document has been expanded by an additional 500 to meet requests from the public.

Public issues managed by the branch included driftnets, B.C. Grape and Wine Strategy, the Special Task Force on the Milk Industry, the Report of the Commission of Inquiry - B.C. Tree Fruit Industry, the Canada- U.S. Salmon-Herring Agreement, as well as issues related to pesticide use, the environment, aquaculture, animal welfare and the Agricultural Land Reserve.

The Public Affairs Branch issued news releases to media across the province and wrote speeches for the Minister. The branch also facilitated guest appearances by the Minister on radio and television talk shows, arranged media events to feature new developments in the industry, and responded to numerous media requests for background information.

Public Affairs initiated a media service which monitors major newspapers, radio and television stations and provides agricultural news summaries to HARVEST system users across the province.

Expanded Access to Agricultural Statistics

In March of 1989, the ministry initiated an in-depth review of statistical services. Recommendations of this review were presented in the Parsloe Report and implemented in 1989-90. As a result, the Statistical Services Unit was restructured and up-to-date methods of data dissemination and storage were utilized.

The ministry's new Agriculture, Fish and Food Statistics Infobase includes;

- statistics on 19 broad commodity classifications;
- U.S. Department of Agriculture report of physical statistics, the U.S. and world market situation, weekly weather and crop summaries and U.S. trade and market reports;
- the domestic situation and outlook by industry and by commodity;
- news from around the province and nation;
- Export and census statistics;
- Financial data; and
- Input cost survey results.

Access to the data base is available through the B.C. Business Network. Work is continuing to make ministry clients aware of the infobase and its value as a resource to markets and information from around the world.

Restructuring and Reorganization

The ministry is continually seeking ways to simplify and streamline administrative structures to provide better service to our clients.

Beginning in 1990, British Columbia farm organizations for beef and hogs will act as agents under government contract to deliver certain aspects of the federal/provincial National Tripartite Stabilization (NTS) program and the provincial Farm Income Insurance (FII) program. Similar arrangements are pending for organizations representing apple and lamb producers.

An administration fee will be collected from the program participants to defray the agency contract charges. The ministry will work closely with the farm organizations to ensure accountability and efficiency in the use of public funds.

This cooperative effort, unique in Canada, will provide the most economical and efficient program delivery system possible.

At the start of the fiscal year, the Statistics Unit was restructured within the Public Affairs Branch and priority is now given to information dissemination, while continuing the more traditional role of data analysis and support for statistical surveys.

Extension and regulatory services available to aquaculture and commercial fisheries are being regionalized to improve program delivery to operations in the central and north coastal areas of Vancouver Island and the mainland. Plans call for the movement of six ministry staff to the Comox/Courtenay area in the fall of 1990 to meet a growing demand for government services in the fish licencing, inspection and aquaculture industry development sectors.

The level of funding for agricultural research has not changed dramatically for many years. In effect, rising costs have led to a decline in research.

A review of the overall system for identifying research priorities has resulted in a proposal for the formation of a British Columbia Agriculture Research Council.

Improved Programs and Legislation

The Specialized Services section of the ministry administers most of the legislation that directly impacts production. Two acts are especially critical to plant and animal health: the Animal Disease Control Act and the Crop Protection Act.

Specialized Services has responsibility for the administration of the Game Farming Act which was passed this year. This legislation established a licensing process for the agricultural production of game, and controls the species of game that can be raised commercially. Further, an amendment to the Animal Disease Control Act made Specialized Services accountable for the health of game farm animals.

The transfer of the Prevention of Cruelty to Animals Act (SPCA) to this ministry revealed the need to update this legislation. A Ministry Advisory Committee on Animal Welfare was formed to give advice on the proposed Act and on animal welfare issues.

Close proximity of agricultural and residential land, as in the Fraser Valley, can easily lead to conflicts and disputes. To address this issue, and following considerable consultation with industry, the Agriculture Protection Act was passed. The Act is designed to discourage nuisance actions against farmers operating in accordance with relevant standards within the Agricultural Land Reserve.

The Farming and Fishing Industries Development Act now enables producers in the farming and fishing industries to collect levies to promote and benefit their industries. This initiative will encourage industry self-reliance and ena-

ble direct producer involvement in developing research and promotional programs.

Consumers are continuing to express interest in a wide range of food choices. This trend represents an opportunity for the food industry to develop and take advantage of niche markets. Setting and maintaining standards for quality assurance in niche markets is an important marketing tool. The Food Choice and Disclosures Act enables individuals within the food industry to work with government to develop credible labelling systems to advertise ingredients or production methods which respond to niche markets.

The Milk Industry Act also received major amendments in 1989. Changes included a provision for a single classification for dairy farms, not tied to the end use of milk, and the stipulation that all B.C. milk (with the exception of raw milk used in making certain specialty cheeses) be pasteurized.

New legislative proposals are also under development to address provincial food product standards and to establish standards for wines manufactured from B.C. grapes.

Much staff time was also taken up in the consolidation of legislation introduced last year.

Crop Insurance Review

In July of 1988 the federal and provincial Ministers of Agriculture initiated a review of the legislation, funding, policies and operational guidelines of the crop insurance programs.

The objective of the review was to develop options for program improvements, taking into account the concerns of farmers and governments as well as financial, actuarial and administrative feasibility.

Consultations with client groups resulted in an amended Federal Crop Insurance Act being approved and enacted prior to fiscal year-end. This amendment set higher standards for operation and control of the program, and deleted the cost sharing formula that existed between the governments of Canada and British Columbia.

Upon agreement, B.C. must meet the operational standards set out in the new Act by 1993. The net cost to the province will increase as a result of the new cost sharing agreement. The higher standards will also increase operating costs and reduce premium rates by improving accountability. Ultimately, it is expected that these measures will improve program operation and quality of service to the client group.

Inspection and Licensing

The Brand Inspection and Regulatory Services Program is responsible for enforcing or assisting with 12 provincial acts.

A staff of seven full-time and 32 part-time employees deal with an assortment of issues ranging from livestock trespass, to domestic dogs at large, to humane transport of livestock. Some infractions result in legal actions which are initiated with assistance from the Ministry of the Attorney General.

To provide security of ownership to the livestock industry, the Animal Health Branch carries out regular brand inspections. Disease control is also maintained by documenting livestock movement and sales.

The brand inspection staff inspected 380,194 head of cattle and 6,203 horses in 1989-90. A brand registry of 6,900 brands is maintained by staff to support the inspection program. In total, 110 head of cattle and 95 horses were seized by brand inspectors and were cleared for sale and shipment only after proper documentation had been provided by the owner.

The orderly marketing of livestock in British Columbia can be largely attributed to the licensing efforts of the Brand Inspection and Regulatory Services, which monitored marketing practices and issued 435 licenses in 1989/90. The licensing process instills confidence in the industry and allows producers access to a secure marketing system.

Public demands that the new aquaculture industry be regulated to protect other coastal interests and the environment led to a number of new initiatives.

Cabinet endorsed the concept of consolidating the existing approval requirements and licensing processes with an Aquaculture License. Consultation with industry and other government agencies resulted in new Aquaculture Regulations as well as amendments to the Fisheries Act.

All commercial aquaculturists were sent application forms and information on the new licensing and revenue administration system.

Revenues

	1989/90 ACTUAL ($000)
SALES AND SERVICE FEES	
FARM INCOME INSURANCE:	
Farm Income Insurance, Government Share	$17,049.0
Farm Income Insurance, Producer Premiums	17,049.0
MISCELLANEOUS SALES — All Departments	3.7
Total Sales and Service Fees	34,101.7
FEES AND LICENCES	
AGRICULTURAL LICENCES:	
Miscellaneous: Game Farm Permits	5.5
Other	0.0
Horned Cattle Purchases	34.6
Brand Certificates	79.5
Brand Inspection Certificates	325.7
Stock Dealers Licences	11.8
Slaughterhouse Licences	2.9
Hide Dealers Licences	2.8
Miscellaneous Brand Revenues	1.0
Dairy Industry Services Licences	8.1
Livestock: AI Centre Licences	1.3
Fur Farm Licences	2.0
Public Sale Yard Licences	1.1
Veterinary Drug Licences	1.8
Veterinary Laboratory Licences	0.1
Veterinary Laboratory Fees	151.5
Poultry Licences and Fees	1.7
Milk Board Recoveries	276.5
	907.9
FISHERIES LICENCES:	
Aquaculture Licences	11.6
Buying Inspection Station/Processing Plant/Cold Storage	246.3
Royalties	0.0
	257.9
MISCELLANEOUS FEES & LICENCES	
Livestock Protection Account — Dogs	14.0
Total Fees, Licences & Permits	1,179.8

INTEREST FROM INVESTMENT	
Gain/Loss on Conversion of Foreign Exchange	17.0
Farm Income Insurance Fund (Interest)	0.1
Interest on Overdue Accounts (F.A.A.-S.17)	66.7
ALDA — Interest on Loans	789.0
Total Interest from Investments	872.8
MISCELLANEOUS REVENUE	
Miscellaneous Receipts — Ministry and Other	3.8
Land Commission Sale of Property	18.4
ARDA Surcharge Recovery	12.7
ARDSA Projects — Refund of Expenditure	128.7
Recovery — Prior Year's Expenditure	814.0
Total Miscellaneous Revenue	977.6
CONTRIBUTIONS FROM THE FEDERAL GOVERNMENT	
ARDSA Recoveries	4,992.7
4-H Clubs — Canada Share	16.5
Farm Labour Service — Canada Share	0.0
Agriculture Exhibitions	2.3
Grape & Wine Producers' Assistance	6,359.7
Total Contributions from the Federal Government	11,371.2
EXTERNAL VOTE RECOVERIES	
MINISTRY OPERATIONS:	
Financial Assistance Programs — Crop Insurance	4,772.6
NTS: Producer Premiums	5,302.0
NTS: Administration Cost Recovery	0.0
TRUST ACCOUNT: Dairy Producers' Protection Fund	0.0
Total External Vote Recoveries	10,074.6
MINISTRY TOTAL	$58,577.7

Expenditures

	1988/89 ACTUAL ($000)
MINISTER'S OFFICE	$ 244,713
MINISTRY OPERATIONS	
ADMINISTRATION & SUPPORT SERVICES	
Deputy Minister's Office	637,847
ADM — Admin. & Support Division	519,813
Marketing Boards & Legislation	489,999
Finance & Administration Branch	5,176,767
Personnel Branch	406,159
Policy Analysis & Coord. Branch	411,525
Public Affairs Branch	1,104,426
Total ADM-Admin. & Support Division	8,108,689
Total Admin. & Support Services	8,746,536
AQUACULTURE & COMMERCIAL FISHERIES	3,259,776
DEVELOPMENT & EXTENSION	
ADM — Development & Extension	299,647
South Coastal Region	3,457,584
North Central Region	1,309,283
Southern Interior	1,984,883
Farm Management Branch	629,558
Soils & Engineering	1,419,371
Extension Systems Branch	254,488
Exec. Director — Special Services	232,054
Animal Health Branch	2,419,502
Rural Organizations Branch	524,490
Crop Protection Branch	2,028,161
Game Farming	70,920
Grants to Fairs & Research Progam	424,790
D.A.T.E. Program	114,761
Total Development & Extension	15,169,492

FINANCIAL PROGRAMS	
ADM — Financial Programs	333,301
Financial Development Programs	4,580,294
Grape & Wine Adjustment	11,202,493
Farm Income Insurance	17,701,510
Crop Insurance	1,559,548
National Tripartite Stabilization	5,479,076
Total Financial Programs	40,856,222
TOTAL MINISTRY OPERATIONS	68,032,026
MILK BOARD	377,872
AGRICULTURAL LAND COMMISSION	1,241,252
AGRI-FOOD REGIONAL DEVELOPMENT SUBSIDIARY AGREEMENT	11,639,303
TOTAL VOTED EXPENDITURE	81,535,166
STATUTORY	
Cattle Horn Act	6,438
Special Accounts	
Farm Income Insurance Act	34,634,749
Less Transfer from Vote	(17,049,044)
Livestock Protection Act	13,237
TOTAL MINISTRY EXPENDITURES	$ 99,140,546

Statistical Tables

Area of Farms – British Columbia and Canada

A. Total Area of Farms ('000 ha)

Year	British Columbia	Canada	B.C. as Percent of Canada
1976	2,449.5	68,428.5	3.6
1981	2,178.6	65,890.4	3.3
1986	2,411.1	63,739.8	3.8

B. Total Area of Improved Farmland ('000 ha)

Year	British Columbia	Canada	B.C. as Percent of Canada
1976	773.5	44,227.6	1.7
1981	946.3	46,122.6	2.0
1986	900.3	46,011.0	2.0

Note: Total area of a census farm is made up of the areas of crop land, summerfallow, improved pasture, other improved land, unimproved land and woodland on farms.

Source: Statistics Canada, 1976, 1981 and 1986 Census of Agriculture.

Agri-Food Sector Contribution to B.C. Goods Production – Gross Domestic Product[1]

MILLIONS OF (1981) CONSTANT $

	1981	1982	1983	1984	1985	1986	1987	1988	1989
Agri-Food[2]	1,362	1,406	1,400	1,376	1,512	1,418	1,441	1,440	1,425
All Goods	13,673	11,975	13,028	12,778	14,037	13,519	15,083	15,471	15,825
Percent	9.96	11.74	10.75	10.77	10.77	10.49	9.55	9.31	9.00

(1) This is Gross Domestic Product which measures the total earnings from production within B.C. at market prices less indirect taxes plus subsidies.
(2) Agri-Food includes Agriculture, Fish, Food, & Beverages.

Source: Central Statistics Bureau, B.C. Ministry of Finance & Corporate Relations

Farm Cash Receipts – B.C. ($'000)

	1984	1985	1986	1987	1988	1989
Wheat	20,638	15,658	9,841	9,393	11,322	11,886
Wheat, CWB payment	2,058	3,063	1,348	0	979	1,877
Oats	1,811	1,175	884	1,126	3,337	3,835
Oats, CWB payment	123	92	17	0	212	246
Barley	9,027	8,519	7,331	6,697	7,396	5,609
Barley, CWB payment	303	2,120	349	45	46	282
Deferments	-5,562	-2,910	-3,615	-2,923	-5,198	-3,996
Liquidations	5,041	5,562	2,910	3,615	2,923	5,198
Rye	728	187	72	131	420	112
Canola	12,514	10,838	5,291	7,411	9,911	6,667
Potatoes	21,809	22,546	23,920	24,386	20,978	20,260
Vegetables	64,305	66,323	76,500	75,481	74,814	80,393
Apples	28,400	28,321	35,276	31,721	32,377	38,341
Other Tree Fruits	13,521	18,205	12,920	14,755	13,311	12,171
Strawberries	7,412	7,077	7,319	12,055	10,369	3,903
Other Berries & Grapes	40,321	53,988	58,143	65,602	70,036	50,165
Floriculture & Nursery	51,948	60,295	71,214	72,796	96,119	111,800
Forage & Grass Seed	3,292	3,476	6,516	6,193	15,571	7,147
Hay & Clover	1,521	1,682	660	1,056	5,336	8,165
Forest Products	16,426	13,461	14,854	15,051	15,212	15,816
Miscellaneous Crops	2,366	2,558	2,655	2,757	3,083	3,040
Total Crops	298,002	322,236	334,405	347,348	388,554	382,917
Cattle	134,347	139,371	134,311	143,089	135,991	136,867
Calves	35,090	33,418	47,710	58,813	43,106	53,604
Hogs	47,521	47,606	54,381	49,540	44,452	45,308
Sheep	175	181	101	145	97	140
Lambs	1,546	1,769	1,950	2,433	2,596	2,505
Dairy Products	221,303	228,153	231,737	231,263	237,361	242,882
Hens & Chickens	72,164	75,019	79,952	90,490	93,629	108,841
Turkeys	15,569	16,640	19,093	19,222	21,095	22,294
Eggs	65,931	61,651	59,619	58,998	62,288	69,037
Wool	144	121	102	113	138	116
Honey	5,963	5,575	4,602	4,086	3,505	3,613
Furs	7,498	7,154	3,505	11,396	8,598	6,021
Misc. livestock	12,146	12,333	12,742	13,393	13,056	13,824
Total livestock	619,397	628,991	649,805	682,981	665,912	705,052
Crop Insurance Paym't	11,041	14,310	15,455	10,084	8,143	12,424
WGSA payments	1,510	3,374	5,360	8,087	3,822	1,130
ASA - Price Stabiliz.	8,362	4,275	1,243	4,233	929	4,036
ASA - Tripartite Plans	0	0	0	0	2,976	16,283
Prov. Stab. Programs	57,735	44,384	44,054	14,113	43,670	24,799
Dairy Subsidy	19	9,894	10,227	10,423	10,539	10,726
Other Payments	28	3,986	8,324	5,552	12,637	6,518
Total Payments	78,695	80,223	84,663	52,492	82,716	75,916
Total Receipts	996,094	1,031,450	1,068,873	1,082,821	1,137,182	1,163,885

Source: Statistics Canada, Agriculture Economic Statistics 21-603E

Farm Operating Expenses and Depreciation Charges – B.C. ($'000)

	1984	1985	1986	1987	1988	1989
Property taxes	10,540	10,184	11,025	11,678	12,448	13,095
Cash rent	18,095	19,095	19,952	20,586	20,609	20,815
Share rent	3,194	3,207	3,188	2,696	2,276	1,857
Cash wages	154,103	167,064	178,250	187,800	197,273	207,137
Room & board	1,859	1,854	2,053	2,172	2,322	2,467
Interest	129,524	120,830	119,209	109,010	111,109	126,125
Building repairs	14,098	14,813	16,504	18,387	19,574	20,640
Fence repairs	3,877	3,939	4,006	3,991	4,191	4,275
Electricity	16,045	17,861	18,156	19,582	20,660	20,660
Telephone	5,405	5,459	5,550	5,649	5,973	5,674
Heating fuel	9,173	13,039	10,386	10,448	10,431	11,140
Fuel	51,488	51,628	41,355	40,744	39,748	42,173
Machinery repairs	48,787	51,256	51,793	54,248	52,604	56,023
Fertilizer	29,179	34,700	33,400	33,279	32,226	35,578
Lime	1,448	1,829	2,007	2,034	1,832	1,927
Pesticides	13,185	14,606	13,690	12,766	12,000	12,360
Commercial seed	14,209	15,477	17,264	18,762	19,029	19,410
Irrigation	2,112	2,129	2,219	2,501	2,501	2,418
Twine, wire & containers	10,077	11,195	10,339	9,789	10,174	12,982
Crop & hail insurance	3,163	4,178	4,584	5,189	5,139	4,786
Commercial feed	201,306	190,423	185,000	159,317	180,623	196,139
Livestock purchases	9,939	7,043	8,886	12,491	13,188	12,468
A.I. fees & veterinary	13,377	13,374	14,030	14,173	15,181	16,077
Business insurance	3,535	3,454	3,873	3,752	3,978	4,185
Custom work	13,537	6,164	6,176	6,435	6,371	6,679
Stabilization premiums	31,296	23,833	22,795	12,036	27,134	14,082
Other expenses	32,502	32,345	32,224	31,181	33,144	34,847
Gross operating expenses	845,053	840,979	837,824	810,696	861,738	906,019
Interest rebates	10,981	5,215	6,741	5,417	636	0
Fuel rebates	443	748	1,287	856	1,010	724
Feed rebates	0	0	0	419	1,373	1,488
Total net operating exp.	833,629	835,016	829,796	804,004	858,719	903,807
Depreciation on buildings	32,445	30,001	27,450	24,321	23,956	24,794
Depreciation on machinery	70,424	69,810	70,579	68,547	66,370	67,940
Total depreciation	102,869	99,811	98,029	92,868	90,326	92,734
Gross expenses	947,922	940,790	935,853	903,564	952,064	998,753
Total rebates	11,424	5,963	8,028	6,692	3,019	2,212
Total net expenses	936,498	934,827	927,825	896,872	949,045	996,541

Source: Statistics Canada, Agriculture Economic Statistics 21-603E

Net Farm Income – B.C. ($'000)

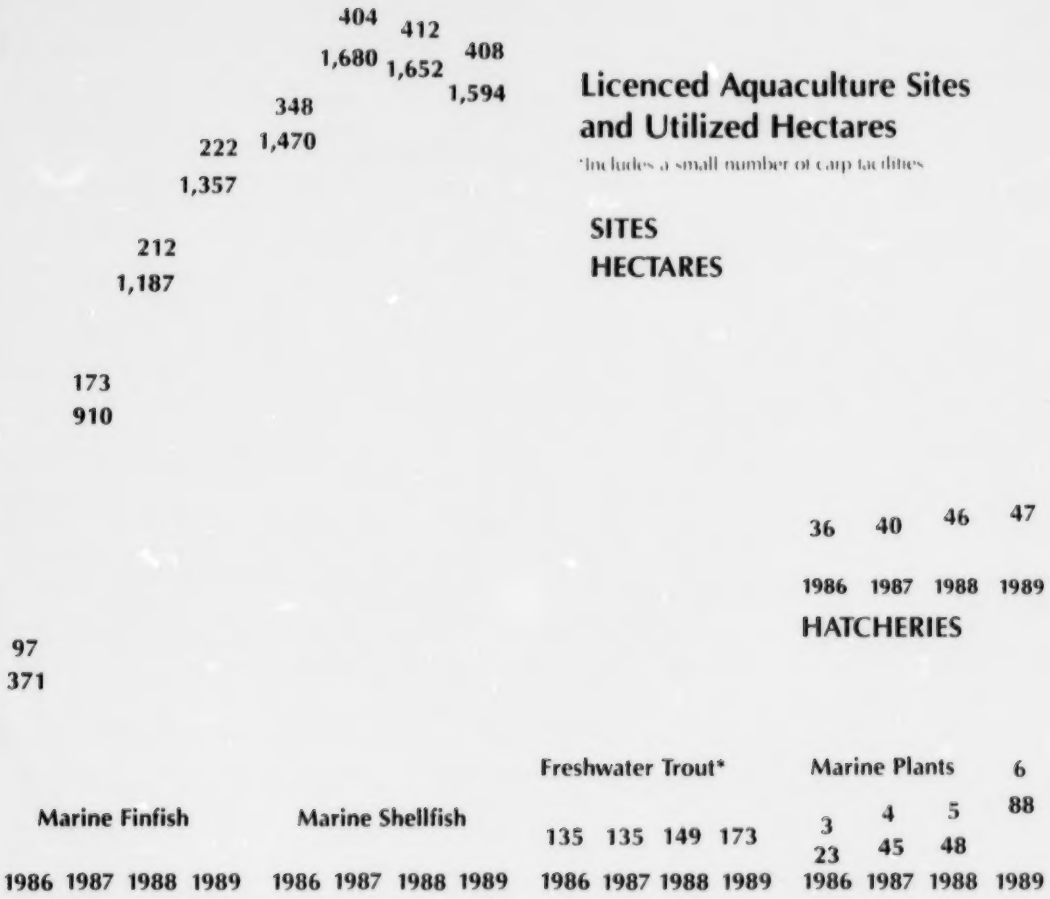
	1984	1985	1986	1987	1988	1989
Total Cash Receipts	996,094	1,031,450	1,068,873	1,082,821	1,137,182	1,163,885
Operating Expenses after rebates	833,629	835,016	829,796	804,004	858,719	903,807
Net Cash Income	162,465	196,434	239,077	278,817	278,463	260,078
Income in Kind	10,889	10,369	8,523	8,651	8,595	8,374
Depreciation	102,869	99,811	98,029	92,868	90,326	92,734
Realized Net Income	70,485	106,992	149,571	194,600	196,732	175,718
Inventory Change	-11,875	-34,413	-1,150	9,603	23,040	4,671
Total Net Income	58,610	72,579	148,421	204,203	219,772	180,389

Source: Statistics Canada, Agriculture Economic Statistics, 21-603E

B.C. Aquaculture Production

	VALUE ($,000)	WEIGHT (Tonnes)	
1986	$2,728	400T	MARINE SALMON & TROUT
1987	$12,872	1,931†T	
1988	$39,084	6,590†T	
1989 est.	$75,000	12,380T	
1986	$2,515	2,864T	OYSTER
1987	$2,548	3,482T	
1988	$2,725	3,702T	
1989 est.	$3,409	3,473T	
1986	$569	101T	FRESHWATER TROUT
1987	$442	90T	
1988	$505	113T	
1989 est.	$558	102T	
1986	$45	20T	OTHER SPECIES*
1987	$133	63T	
1988	$93	43T	
1989 est.	$113	35T	

†revised
*Other species include: manila clams, blue mussels, scallops, abalone, and marine plants and carp.

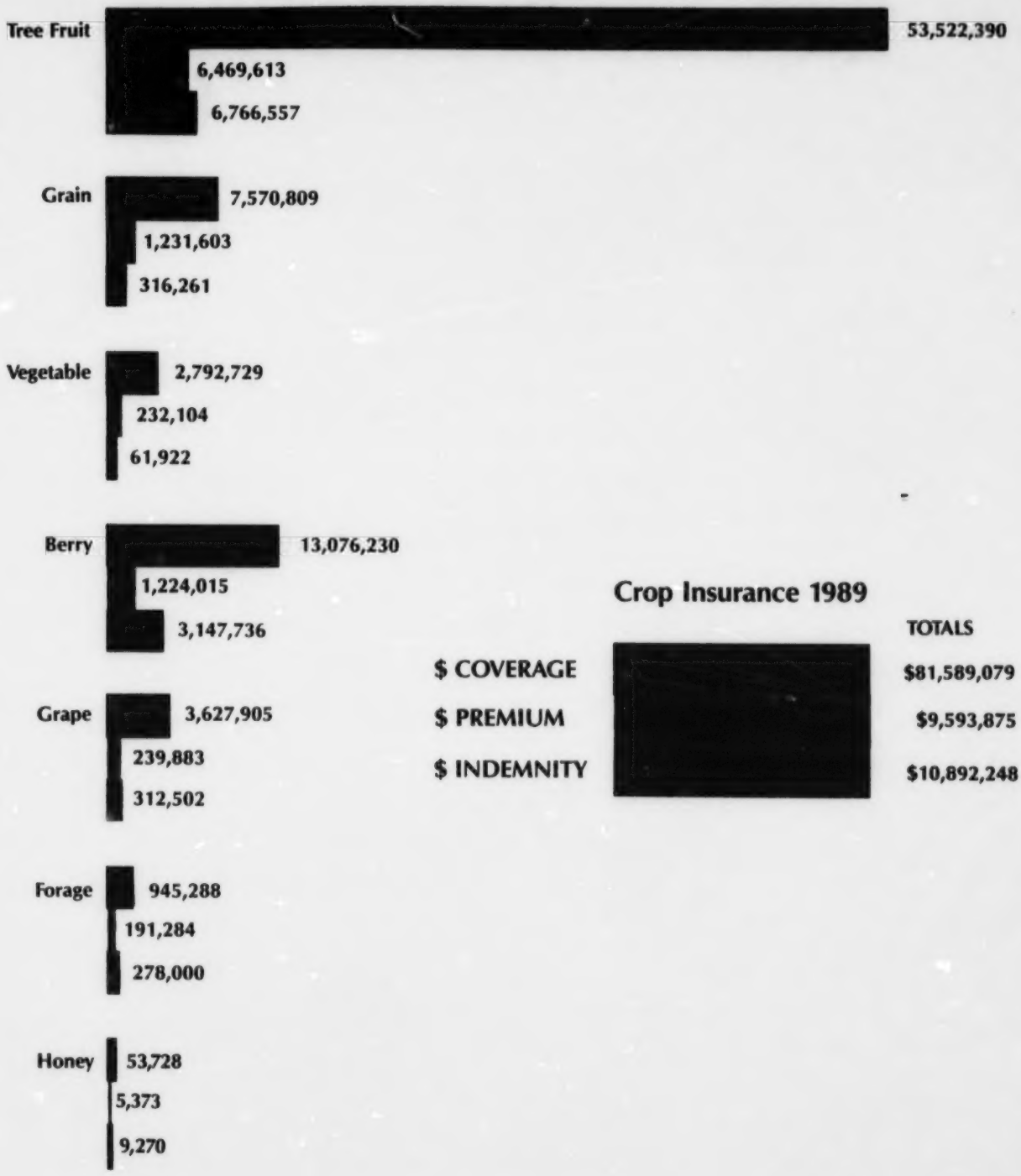


B.C. Commercial Fish Landings

	1988			1989[7]		
	Landed Quantity (Tonnes)	Landed Value ($mil)	Wholesale Value ($mil)	Landed Quantity (Tonnes)	Landed Value ($mil)	Wholesale Value ($mil)
Salmon[1]	84,830	312	584	86,556	254	592
Herring[2]	31,601	96	176	40,267	65	147
Halibut[3]	5,866	23	30	4,624	18	27
Groundfish[4]	115,536	60	94	112,369	41	68
Shellfish[5]	23,116	41	72	14,970	30	51
Other[6]	334	1	1	469	1	1
TOTAL	261,283	533	956	259,255	409	886

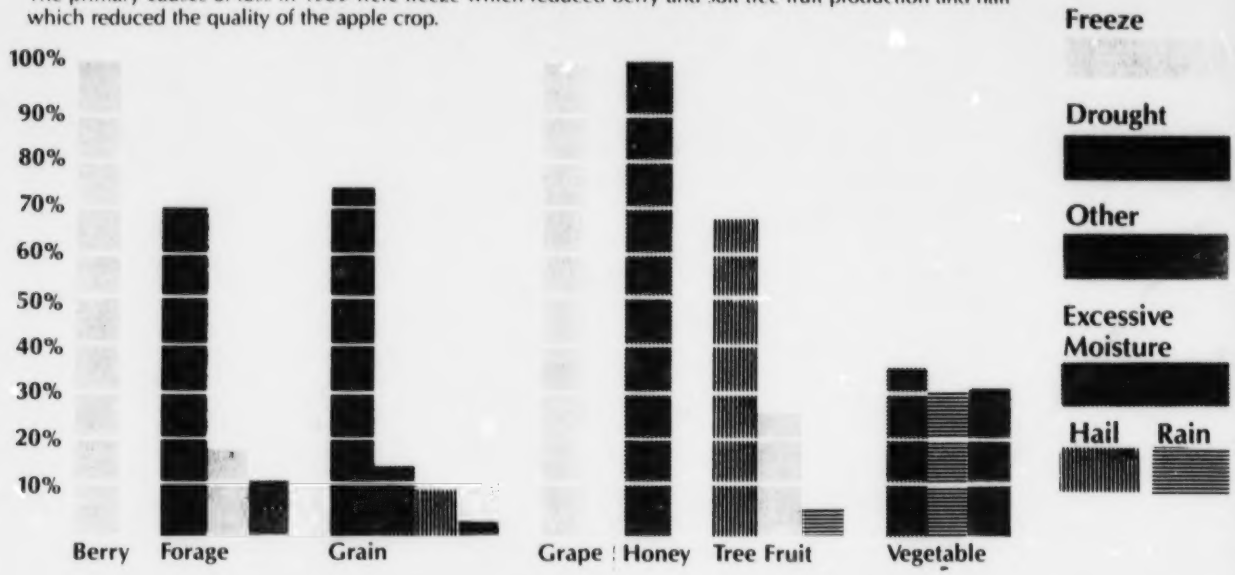
Footnotes:
1. Includes salmon roe but does not include salmon aquaculture production. Wholesale value includes production derived from U.S. salmon.
2. Includes herring spawn on kelp.
3. Includes halibut landings at U.S. ports.
4. Includes hake delivered to foreign vessels in cooperative fishing arrangements and "other fish" not elsewhere included.
5. Includes shellfish aquaculture production.
6. Includes sturgeon, tuna, eulachons, smelt, anchovies, floating kelp and other fish.
7. Quantity data for 1989 is preliminary; values are based on estimated prices.

Sources: B.C. Annual Fisheries Production Statistics - Ministry of Agriculture and Fisheries
Annual Summary of B.C. Catch Statistics - Canada, Department of Fisheries and Oceans.


Tree Fruit
53,522,390
6,469,613
6,766,557
Grain
7,570,809
1,231,603
316,261
Vegetable
2,792,729
232,104
61,922
Berry
13,076,230
1,224,015
3,147,736
Grape
3,627,905
239,883
312,502
Forage
945,288
191,284
278,000
Honey
53,728
5,373
9,270
Crop Insurance 1989
TOTALS
$ COVERAGE
$81,589,079
$ PREMIUM
$9,593,875
$ INDEMNITY
$10,892,248

Cause of Loss - 1989 Crop Year (% of Totals $)

The primary causes of loss in 1989 were freeze which reduced berry and soft tree fruit production and hail which reduced the quality of the apple crop.



Farm Income Insurance, March 31, 1990

SOURCE OF FUNDS Government Premiums ($)	Fiscal 88-89	Fiscal 89-90
Blueberry	102,604	(9,309)
Beef	4,033,677	4,019,353
Greenhouse	73,258	1,988
Potatoes	107,187	614,419
Sheep	740,485	21,399
Strawberry	2,078,211	242,571
Swine	3,322,630	101,260
Tree Fruit	2,628,493	12,419,855
Vegetable	214,009	(362,492)
TOTAL PREMIUMS	$13,300,554	$17,049,044
USE OF FUNDS Net Indemnities to Farmers ($)		
Blueberry	(102,604)	109,310
Beef	3,197,634	5,851,721
Greenhouse	(55,111)	113,101
Potatoes	1,446,678	(612,483)
Sheep	(722,672)	260,270
Strawberry	1,887,342	43,502
Swine	3,981,023	(230,489)
Tree Fruit	2,423,644	12,138,267
Vegetable	(6,621)	(87,495)
TOTAL NET INDEMNITIES	$12,049,313	$17,585,704
Surplus (Deficit) during year	1,251,241	(536,660)
Surplus (Deficit) beginning of year	9,694,514	10,945,755
Total Surpluses (Deficits) as at March 31, 1990	$10,945,755	$10,409,095

Work Done Under A.L.D.A. April 1, 1989 - March 31, 1990

Area	Cleared Acres	Amount $	Broken Acres	Amount $	Irrigation $	Drainage $	Orchard $ Renovation	Other $	Total $
Abbotsford	96	59,070	-	-	72,588	73,563	-	33,954	239,175
Chilliwack	-	-	-	-	17,490	-	-	2,880	20,370
Courtenay	-	-	-	-	-	-	-	-	-
Cranbrook	-	-	-	-	-	-	-	-	-
Creston	-	-	-	-	-	-	-	-	-
Dawson Creek	3	900	-	-	-	-	-	10,162	11,062
Duncan	25	30,000	-	-	27,977	27,942	-	6,306	92,225
Fort St. John	264	9,600	200	12,000	-	-	-	2,000	23,600
Kamloops	90	18,832	97	8,233	22,971	-	-	8,959	58,995
Oliver & Penticton	10	5,994	-	-	18,505	-	187,819	10,800	223,118
Prince George	135	24,042	45	2,882	-	-	-	31,768	58,692
Quesnel	96	18,336	96	18,336	22,875	-	-	-	59,547
Salmon Arm	30	10,500	-	-	-	-	-	4,075	14,575
Smithers	138	39,110	128	13,713	20,986	-	-	-	73,809
Surrey	-	-	-	-	-	-	-	-	-
Vanderhoof	-	-	80	3,600	23,497	-	-	-	27,097
Vernon/Kelowna	-	-	-	-	152,889	-	28,216	19,832	200,937
Williams Lake	154	29,150	154	14,325	50,000	-	-	8,160	101,635
TOTALS	1,041	245,534	800	73,089	429,778	101,505	216,035	138,896	1,204,837

Agricultural Land Development Assistance Program

(FISCAL YEAR)	1988/89 No.	Amount	1989/90 No.	Amount
Total Applications Received	95	$ 1,851,990	98	$ 2,407,066
Total Contracts Issued	118	$ 1,571,696	101	$ 1,321,758
Total Expenditures		$ 1,908,218		$ 1,247,200
Total Contracts Outstanding		$ 627,439		$ 549,050
		$ 2,535,657		$ 1,796,249
Total Loans Payments Received		$ 3,632,019		$ 3,279,595
Total Accounts as at March 31	1,979	$15,198,532	1,803	$14,048,906
Total Delinquent Loans	159	$ 214,697	165	$ 260,792
Transferred to Taxes	41	$ 396,043	23	$ 119,200

NOTE: "Accounts Transferred to Taxes 89/90" includes accounts transferred to the Surveyor of Taxes in April '90 for 1990.

Farm Product Industry Act Guarantees and Loans Outstanding

Guarantees	
Victoria Farm Meats Services Ltd.	$ 150,000
Shergar Enterprises Ltd.	1,600,000
	$1,750,000
Financial Administration Act — Section 56 — Guarantees	
East Chilliwack Agricultural Co-op	$2,000,000
Fraser Valley Mushroom Growers' Co-op	1,000,000
	$3,000,000
TOTAL	$4,750,000

Agricultural Credit Act Guaranteed Loan Program Active Guarantees, March 31, 1990, By Region

Region	No	($000)
South Coastal	36	3,199
Southern Interior	5	568
North Central	2	265
TOTAL	43	4,032

Agricultural Credit Act Guaranteed Loan Program Active Guarantees, March 31, 1990, By Enterprise

Enterprise	No	($000)
Dairy	8	648
Beef	2	165
Grain & Forage	0	0
Poultry	1	99
Vegetables	5	500
Orchards/Vineyards	3	378
Swine	5	415
Mushroom	9	641
Aquaculture	3	367
Sundry	7	819
TOTAL	43	4,032

ARDSA Approved Projects to March 31, 1990

Commodity	Number Projects	Project Cost	ARDSA Share
Livestock			
- Beef	29	$ 7,592,711	$ 2,275,163
- Dairy	6	1,115,951	299,528
- Swine	10	649,925	510,413
- Other	8	2,533,531	636,960
Poultry	7	282,583	156,754
Honey/Bees	10	958,860	452,348
Tree Fruits	50	17,224,530	5,239,605
Soft Fruits	23	10,910,452	2,288,134
Nuts	2	452,000	116,665
Greenhouse Vegetables	7	2,558,204	626,526
Field Vegetables	28	9,528,514	1,991,666
Nursery	6	261,889	217,144
Forages	36	2,576,120	1,640,718
Cereals, Oilseeds	12	4,485,884	2,394,581
Mushrooms	6	218,963	80,580
Fur	2	70,864	20,612
Mixed	4	933,961	723,826
Irrigation/Drainage/General Projects	87	15,224,169	13,498,777
TOTAL ARDSA Program	333	$77,579,111	$33,170,000

Canada-British Columbia Grape and Wine Adjustment Assistance Initiative ($000)

Program Component	Federal Funds	Prov. Funds	Total
Deficiency Payment	2.4	2.1	4.5
Vine Removal	10.5	9.3	19.8
Cash Cost Escalation	.6	.6	1.2
Marketing	.5	.5	1.0
Provincial Credit	0.0	1.5	1.5
TOTAL	14.0	14.0	28.0

1989/90 Fiscal Expenditures Canada-British Columbia Grape and Wine Adjustment Assistance Program

Component	($) Expenditures
Vine Removal	$19,312,297
Deficiency Payment	2,250,000
Cash Cost Escalator	1,284,654
Market Development	5,541
TOTAL	$22,852,492

ARDSA Summary 1985-1990

	Applications Received	Applications Ineligible	Rejected or Withdrawn	Projects Approved
Program 1: Productivity Enhancement	306	60	126	108
Program 2: Resource Development	233	33	85	96
Program 3: Commodity Development	190	48	87	51
1985-1989/90 Agreement Total	729	141	298	255

Related Agencies, Boards, and Commissions

Agricultural Land Commission
British Columbia Marketing Board
British Columbia Broiler Hatching Egg Commission
British Columbia Chicken Marketing Board
British Columbia Cranberry Marketing Board
British Columbia Egg Marketing Board
British Columbia Grape Marketing Board
British Columbia Hog Marketing Commission
British Columbia Milk Marketing Board
B.C. Mushroom Marketing Commission
British Columbia Oyster Board
British Columbia Tree Fruit Marketing Board
British Columbia Turkey Marketing Board
British Columbia Vegetable Marketing Commission
British Columbia Sheep and Wool Commission

Legislation Administered by the Ministry of Agriculture and Fisheries

Agriculture and Rural Development (B.C. Act)
Agriculture Credit Act
Agricultural Land Commission Act
Agriculture Protection Act
Agriculture Produce Grading Act
Agrologists Act
Animal Disease Control Act
Bee Act
Cattle Horn Act
Farm Distress Assistance Act
Farm Income Insurance Act
Farm Product Industry Act
Farmers and Women's Institutes Act
Farming and Fishing Industries Development Act
Fish Inspection Act
Fisheries Act
Food Choice and Disclosures Act
Fur Farm Act
Grasshopper Control Act
Insurance for Crops Act
Livestock Act
Livestock Brand Act
Livestock Industry Act
Livestock Lien Act
Livestock Protection Act
Livestock Public Sale Act
Meat Inspection Act
Milk Industry Act
Ministry of Agriculture and Food Act
Natural Products Marketing Act
Pharmacists Act (sections 49-55)
Plant Protection Act
Prevention of Cruelty to Animals Act
Seed Grower Act
Seed Potato Act
Soil Conservation Act
Veterinarians Act
Veterinary Laboratory Act
Weed Control Act

Index

Agencies, Boards and Commissions (complete listing) -45
Agriculture in the Classroom -24
Agricultural Land Commission -28
Agriculture Protection Act -28
Agricultural Waste Management Committee -16
ALDA (Agricultural Land Development Assistance program) -11,15,25
ALR (Agricultural Land Reserve) -28
Animal Disease Control Act -13,28
Animal Health Branch -13,18,29
    -Animal Health Centre -13
animal welfare -28
aquaculture
    -Aquaculture Regulation -12
    -Fish Inspection Compliance Manual -13
    -impact on environment -16,17,25
    -licencing -29
    -mortalities -18
    -Plankton Watch Program -18
    -Quality Management Program -13
    -technology transfer -18,28
    -trade -10
    -underutilized species -18
Aquaculture & Commercial Fisheries Branch -18
ARDCORP -19
ARDSA (Agri-Food Regional Development Subsidiary Agreement) -12,14,15,18,24,25
BCCA—(B.C. Cattlemen's Association) -18
BCFA—(B.C. Federation of Agriculture) -16
B.C. Feed Grain Market Development Program -26
B.C. Food Processors Association -10
B.C. Game Farming Advisory Council -21
B.C. Trade Corporation -10
B.C. Vegetable Marketing Commission -10
bees
    -destruction of hives by bears -11
    -honey production -23
    -tracheal mites -23
Brands and Regulatory Services section -29
British Columbia Agricultural Research Council -28
brucellosis -21
Can West Horticulture Show -12
Christmas trees -22
commercial fisheries -10,14,16
    -underutilized species -18
computers -27
    -ministry use of -20
CRIS (Coastal Resource Interest Studies) -17
Crop Insurance Program -25,26,27,29

Crop Protection Act -28
Crop Protection Branch -11,12,20
Cruelty to Animals Act -28
dairy industry
-B.C. Milk Marketing Board -21
-*Dairy Digest* -21
-Dairy Industry Program -21
-Dairy Producers' Short Course -19
-Graduated Entry Program -21
-Milk Industry Act -21,29
-National Milk Marketing Scheme -21
DATE (Demonstration of Agricultural Technology and Economics)
programs -17
DFO (federal Department of Fisheries and Oceans) -10,13,16,17
direct marketing -9,15,17
diversification -22
driftnets -14,15
education -20,24
Environment
pesticides -14
soil erosion -15
waste management -15,16
water conservation -15
exports -25
Extension Branch -11,17-24
Farm Business Challenges 1990 -20
Farm Income and Crop Insurance Branch -25,26
Farming and Fishing Industries Development Act -28
Farm Management Branch -16,19
-Planning For Profit -19
FII (Farm Income Insurance program) -25,26,27
fish
-herring -10
-salmon -10,14,16
-Underutilized Fisheries Development Centre -18
Fisheries Act -29
floriculture -20
Food Choice and Disclosures Act -29
food safety -13
forage
-management -18,19
-wildlife damage -11
FTA (Free Trade Agreement) -9,10
4-H -23
fur farming
-Aleutian Disease Eradication program (mink) -13
Game Farming Act -28
game farming -21
-bison -21
-fallow deer -13,21
-game birds -22
-reindeer -13,21

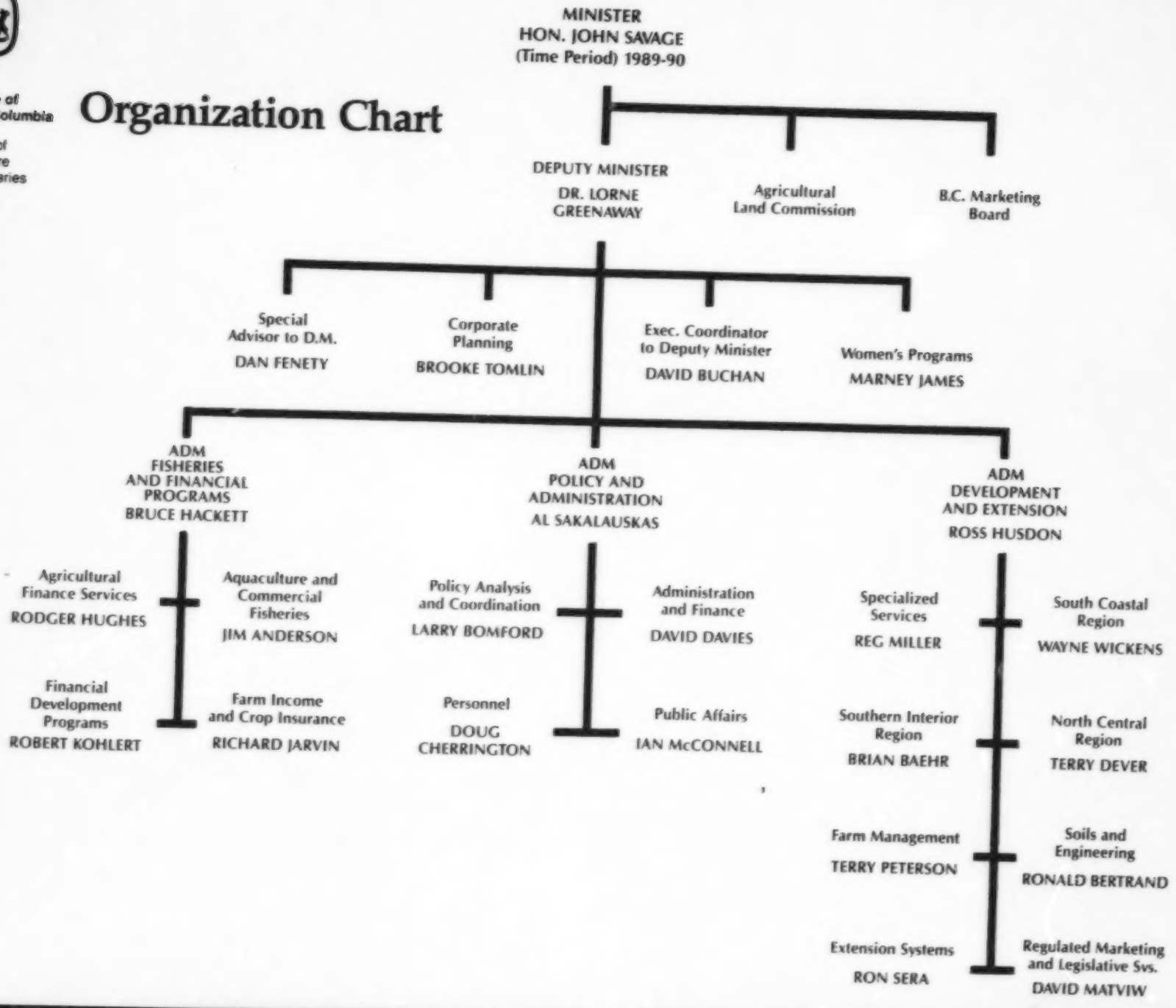
GATT (General Agreement on Tariffs and Trade) -9,10
Globe '90 -14
grains -26
grape and wine industry -25
-Canada/British Columbia Grape and Wine Sector Adjustment Assistance Initiative -25
greenhouse industry -20
Grower Loan Program -25
Guaranteed Loan Program -25
hazelnuts -22
horse industry
-B.C. Interior Racing Association -22
-economic impact of -22
-Horse Industry Short Course -22
-Horse Race Improvement Fund -22
-Improved Marketability of B.C. Produced Horses -17,22
horticulture
-1990 Growers' Short Course -20
HMR (Holistic Resource Management) -23
-Lower Mainland Horticultural Improvement Association -20
-ginseng -20
IPM (Integrated Pest Management) -14,17,25
Integrated Resource Management -23
irrigation -16,25,
kiwifruit -22
labour -19
land use conflicts -23
legislation administered -45
marketing -24,
Ministry of Crown Lands -23
Ministry of International Business and Immigration -9
MOE (Ministry of Environment) -14
NTS (National Tripartite Stabilization) -25,26,28
Nursery Certification Program -11
offices -51
oilseeds -26
organization chart -50
pests and diseases
-biological control -14
-pesticides
• certification requirements -14
• classification and labelling -10
• pesticide applicator course -14
PFRA (Prairie Farm Rehabilitation Administration) -16
Planning for Profit -19
poultry
-lighting (effect on production) -11
-Poultry Monitoring Program -13
Public Affairs Branch -27
-Communications Unit -27
-Statistics Unit -27,28
range management -19

salmon -10
sheep
-grazing sheep to replace herbicides -22
-Sheep Footrot pilot project -13
soil erosion -15
Soils and Engineering Branch -15,16
solar energy -16
SPDMA— (Saanich Peninsula Direct Marketing Assoc.) -9,17
Specialized Services -28
specialty markets -9
statistics analysis -27
Statistical Tables -31-44
Trade -9,10
swine
-Commercial Swine Program -13
-SHHP(Swine Herd Health Program) -13
tree fruits
-Commission of Inquiry -11,27
-diseases -11,12
-Okanagan Strategy -19
-Tree Fruit Production Guide -11
-wildlife damage -11
tuberculosis (bovine-type) -21
veterinarians
-Veterinary Laboratory Act -13
water management -15,16,25
Waste Management Act -16
weeds
-biological control -18
-herbicides -10
-Weed Control Act -10
wetland development -15
wildlife damage -11,17

Province of British Columbia

Ministry of Agriculture and Fisheries

Organization Chart



Offices

Minister's Office	Legislative Buildings, Victoria, V8V 1X4 TELEPHONE 387-1978 FAX 356-2290
Abbotsford	Main Office, 205 33780 Laurel Street V2S 1X4 TELEPHONE 852-5211 FAX 852-5428
	Soils and Engineering, 33832 South Fraser Way V2S 2C5 TELEPHONE 852-5363 FAX 853-4383
	Agriculture and Food Centre, 32916 Marshall Road V2S 1K2 TELEPHONE 852-5350 FAX 852-5394
	Animal Health, 1874 Gladwin Road, Box 100 V2S 4N8 TELEPHONE 854-4400 FAX 853-4357
Chilliwack	45850 #F Yale Road V2P 2N9 TELEPHONE 795-8395 FAX 795-8454
Cloverdale	17720 57th Avenue, Surrey V3S 4P9 TELEPHONE 576-2911 FAX 576-8717
Courtenay	2500 Cliffe Avenue V9N 5M6 TELEPHONE 334-1239 FAX 334-1209
Cranbrook	42 8th Avenue South V1C 2K3 TELEPHONE 426-1535 FAX 426-1546
Creston	456 Northwest Boulevard Box 1980 V0B 1G0 TELEPHONE 428-3255 FAX 428-3271
Dawson Creek	1201 103rd Avenue V1G 4J2 TELEPHONE 784-2225 FAX 784-2299
Duncan	238 Government Street V9L 1A5 TELEPHONE 746-1210 FAX 746-1292
Fort St. John	201- 9711 100th Avenue V1J 1Y2 TELEPHONE 787-3240 FAX 787-3299
Kamloops	162 Oriole Road V2C 4N7 TELEPHONE 828-4552 FAX 828-4631 Brands 828-4677 FAX 828-4979

Kelowna	1873 Spall Road V1Y 4R2 TELEPHONE 861-7211 FAX 861-7490
Oliver	Court House, Box 940 V0H 1T0 TELEPHONE 498-6235 FAX 498-6333 (Govt. Agent)
Penticton	3547 Skaha Lake Road V2A 7K2 TELEPHONE 492-1320 FAX 492-1309
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Quesnel	101 350 Barlow Avenue V2J 2C1 TELEPHONE 992-4241 FAX 992-4221
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